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THE CLIMATE OF PAU;

ETC., ETC.

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A COMPARATIVE ENQUIRY

AS TO THE

PREVENTIVE AND CURATIVE INFLUENCE

OF THE

CLIMATE OF PAU

AND OF

MONTPELLIER HYÈRES NICE ROME PISA FLORENCE NAPLES BIARRITZ ETC.

ON

HEALTH AND DISEASE

WITH

A DESCRIPTION OF THE WATERING PLACES OF THE PYRENEES AND OF THE VIRTUES OF THEIR RESPECTIVE MINERAL SOURCES

BY

ALEX. TAYLOR M.D. F.R.S.E.

COR. MEMBER OF THE HIST. INSTITUTE OF FRANCE ETC. ETC.

A NEW EDITION CONSIDERABLY ALTERED AND ENLARGED

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TO THE

RIGHT HON. LORD JOHN MANNERS, M.P.,

ETC., ETC.

THIS work is dedicated as a souvenir of an acquaintance made many years ago, and more recently renewed amidst some of the scenes herein described.

Independently of the feeling of regard and obligation for many kindnesses received, the Author thinks that the part of the work which has reference to Pau and the Pyrenees, may be appropriately inscribed to one who, having resided on the spot, has had good opportunities of testing the correctness of the sketches as to scenery, of the references as to objects of antiquarian interest, and of the views propounded as to climate.

PAU, 1*st July*, 1856.

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COMPARATIVE ENQUIRY AS TO THE PREVENTIVE AND CURATIVE INFLUENCE

OF

THE CLIMATES OF PAU, MONTPELLIER, HYÈRES, NICE, ROME, PISA, FLORENCE, NAPLES, BIARRITZ,

ETC.

CHAPTER I.

INTRODUCTORY REMARKS.—IGNORANCE IN ENGLAND, UNTIL WITHIN A FEW YEARS, RESPECTING PAU AND ITS CLIMATE.—ITS MEDICAL PROPERTIES GRADUALLY DEVELOPED BY ACCIDENT AND CONFIRMED BY TIME.—GREAT UNCERTAINTY STILL AMONG PHYSICIANS, WITH REGARD TO THE CHOICE OF CLIMATE FOR INVALIDS.—MISTAKES, AND SOMETHING WORSE RESULTING FROM THIS.—EXAMPLES TO SHOW THAT CLIMATES, IN THE SAME LATITUDE, DIFFER MOST ESSENTIALLY IN MEDICAL PROPERTIES.—DIFFICULTIES WHICH FOREIGN CLIMATES HAVE TO CONTEND WITH, FROM IGNORANCE, WITH REGARD TO THEIR PROPERTIES, PREJUDICE AND EXAGGERATED EXPECTATIONS.

IT is now nearly fourteen years since this work, the result at that time of several years' experience in a medical capacity, of the climate of Pau and of its influence on health and on disease, was first given to the public. The reception it has met with in England and other countries, it having been translated into more than one continental language, has proved that some such publication was, at that time at least, a *desideratum*; and now, when many alterations in it are rendered necessary from lapse of time, and from an increased experience of the subject, it is hoped that the public will receive the present attempt in an equally indulgent manner.

Before the first edition of this work, little was known in England on the subject of the climate of Pau and of the mineral waters of the Pyrenees. Vague rumours transmitted by one to another had, since the peace, given to Pau a sort of twilight fame, but had scarcely conveyed to the English enquirer any tangible details or communicated any leading principles respecting the merits of its climate as *preventive* or *curative* of disease, nor had any strict comparison been instituted between its qualities and those of other localities to which invalids had been indiscriminately sent for many years before. And as to the mineral waters of the Pyrenees, absolutely nothing was known of them in England.

For twenty years before that time, Pau had been progressively acquiring a quiet reputation among an unbroken succession of visitors, who, without having perhaps originally arrived there in search of health, had yet derived advantage from the salubrity of its climate, and had recommended it to others as a place of temporary sojourn; but no one had cared to consider the reason why, in many instances, it had acted beneficially; nor had any distinct rules been thought of, either from investigation or experience, to guide the distant invalid as to when he ought to seek, or under what circumstances he ought to avoid, its climate; and thus, as often happens in experimental researches in physics and mechanics, when, in quest of one result, another is developed, a species of chance led to the conviction, that the climate of Pau, although inferior in agreeability to those of Nice, Naples, and some others, to persons in health and capable of enjoying bright suns and cloudless skies, still possessed a singular influence in diminishing nervous and inflamma-

tory irritation, and in producing sensations of *bien-être*, which the others could not boast of.

And now it is no longer a contested point. The scientific attention, directed of late years to the subject of climate, has, with tolerable accuracy, assigned to the leading localities of Europe, to which invalids had been in the habit of resorting, their distinct positions in reference to their influence on the human frame in sickness and in health.

But although the subject of climate has been thus studied by competent persons, and tolerably accurate deductions have been the result, such at least as are useful guides in practice; still it is singularly unaccountable, how little this knowledge seems to operate on persons in search of climate, and how little masters of the subject, even medical men of considerable reputation prove themselves to be.

Thus in England, for instance, if a disease, after being subjected to lengthened and unavailing medical treatment, seems to owe its want of success to the influences of a hostile climate, physicians often recommend the invalid to travel; but leave to his caprice the choice as to whither he shall go; or if they designate one, it is, indifferently, the south of France, Nice, Naples or Rome, etc., without distinguishing betwixt their varied, and often opposing, properties. They, as well as their patients, seem to think that a change of *latitude* only is necessary, and that it requires simply a pilgrimage of a few hundred miles to the south, in order to produce a certain cure, or, at least, an amelioration of their symptoms. We shall, in passing, give one instance to show how erroneous and how dangerous this opinion is. The climates of the south-west

and of the south-east of France, although nearly in the same *latitude*, are diametrically opposite in their properties, and in their effects on the human frame.

The climate of the south-west of France, of which Pau may be considered as the centre, is almost *neutral* in its properties, rarely shewing a surplus either of humidity or dryness, free from winds, sedative in its character, and soothing to the nervous and circulating systems; and diseases of the chest are rare among the natives.

The climate of the south-east of France, of which Montpellier may be considered as the centre, is, on the contrary, highly electric and dry, subject, particularly during the spring, to severe cutting and irritating winds, exciting in its qualities and productive of inflammatory diseases of an acute character. To prove these latter assertions, we shall produce the following unbiassed evidence. We find in a work on the Medical Topography of Montpellier*, the following statistical results of diseases treated during a year in the public hospital of that town. The number of patients admitted in one year was 2756; the proportion of deaths was 154; and of that number 53, that is more than a third, were caused by diseases of the chest.

Again, we find the following opinion from a work† full of valuable observations, on the effects of the winds of the south-east of France: 'One ought to have a chest sound and well-constituted, to resist such impres-

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* *Topographie Médicale de la Ville de Montpellier*, par M. MURAT.

† *Recueil des Observations de Médicine des Hôpitaux Militaires*, par M. R. DE HANTESIERK, tom. ii. p. 5.

sions.' Matthews also, in his 'Diary of an Invalid,' says, 'That every mouthful of the air irritates weak lungs, and sets them coughing.'

The winds, which are here so emphatically characterised, the Bise and the Mistral, are felt throughout Provence, and are most deleterious to persons with delicate chests in Nice itself, particularly during the spring months.

Thus it often happens, that English physicians practising at Pau, Nice, Rome, Naples, etc., have patients directed to their care, suffering from maladies which are of the *staple of the climate to which they are sent*, which are, *par excellence,* there engendered, and which must of consequence *be aggravated by it.*

The same observations apply also with regard to the mineral waters of the Pyrenees, about which, although valuable curative agents, scarcely anything is known by the medical faculty in England; for Pau, and the localities where those waters are found, are frequently confounded as meaning the same thing.

Physicians have frequently sent patients, in all stages of disease, in search of the benefits derivable from the mineral waters of Pau, while the only waters it boasts of, is the noisy Gave, a rapid mountain river, working its way from its distant source under the renowned *Breche de Roland*—a name replete with chivalrous associations to the believers in the romantic doings of Orlando and his knights—through a valley of unparalleled beauty, and washing the platform on which Pau is built, in its passage to the sea.

It is not an unusual thing to find physicians in England, who arbitrarily settle the claims of climate by

a *sneer ;* an unlaborious, but certainly not very candid, way of forming a judgment on a question, which they have not taken the trouble to investigate.

But climates possessing a curative reputation, have another drawback to contend with; namely, from the exaggerated expectations of invalids. The desire for change incident to a person suffering from chronic disease, the *ennui* of his days and the sleeplessness of his nights, the renewed hope springing up from the proposed change of abode; all these strike upon his imagination, and he conjures up before him an anticipated elysium, a country where the sun always shines, the sky is always serene, the breeze is always balmy; where, in short, the sensitive and overstrained nerves and the irritable and quickened pulse may find solace and repose, and where the morbid symptoms threatening to life, may be miraculously arrested.

One would seek in vain on this earth—whose condition the fall of man has made unstable for good or evil—the realization of these visions; which, indeed, have no existence save in the dreams of the poets, who imagined the Age of Gold.

Disabused of these chimeras by experience, the disappointed patient, however much he may, in reality, be benefitting by the climate, runs into an opposite extreme; and because the sun will occasionally hide his face, and the sky will look black, and the wind will be cold and bleak, and the rain will come down—as it does at some time or other all over the earth, and if it did not do so, it would no longer be our earth—he grumbles, as a native of Great Britain only can. In this mood we have known some persons to continue without

any alternations of mental sunshine, during the period of their stay; and we have also known the same persons furnish a strange commentary on their proceedings, by returning to Pau at a subsequent period, after having tried other climates, and remaining there for years.

It is this ignorance with regard to the peculiar virtues of any climate, that ultimately tends to bring it into disrepute, since more is expected from a reputation much exaggerated, because frequently depending upon loose gossip, than any climate, however favoured, can perform. How much the history of Pharmacy shows this to be the case with regard to medicines; for frequently some one remedy, a useful curative agent in a limited number of morbid affections, has come to be viewed with distrust, if not altogether discarded from practice, from its having been indiscriminately applied or given in improper quantities. And the fate which has attended many favourite places of resort for invalids, may be traced up to a similar cause. Decidedly favorable in the alleviation and cure of a limited number of diseases, they have been tasked, without reason, to perform impossibilities in another train of maladies, either incurable or altogether unsuited to the peculiarities of the climate chosen.

No reasonably informed person ever claims more for climate than, first—That it may be effective as a *preventive*, where, from delicate organisation, fatal disease in some organ important to life, might be the result, if a person so circumstanced, were subjected to, or remained under hostile atmospheric agency: or, second—That it places patients of certain classes, where disease has actually commenced to develop itself in vital organs,

under favourable circumstances for treatment. That climate may soothe disease and prolong life for a short time, even where serious organic injury has taken place, we often find to be true, but we think that in such cases the advantages are more than counterbalanced by the fatigue of a long journey, the disturbance of the invalid's ordinary habits, and the inconvenience to one so placed of a residence in a foreign country, where the natives have not yet quite incorporated *comfort* as a *fact* into their habits, although they have introduced the word into their language.

CHAPTER II.

SIR JAMES CLARK, THE FIRST AUTHOR WHO HAD NOTICED THE QUALITIES OF THE CLIMATE OF PAU. — HIS ORIGINAL REMARKS, AND SUBSEQUENTLY MODIFIED OPINIONS ON THIS SUBJECT. — PLAN OF THIS WORK. — ITS MATTER NOT ONLY INTENDED FOR THE PHYSICIAN AND THE INVALID, BUT SHEWING IN WHAT MANNER THE ANTIQUARIAN, THE GEOLOGIST, THE BOTANIST, THE ARTIST, AND THE SPORTSMAN, MAY, AMIDST THE SCENES IT DESCRIBES, EACH FIND OCCUPATION. — GENERAL OBSERVATIONS CONNECTED WITH THE MINERAL WATERING-PLACES OF THE PYRENEES.

BEFORE the first appearance of this work, no English author, partial or impartial, with the exception of a cursory notice by Sir James Clark, in his excellent work on Climate, had brought forward the claims of Pau as a place of resort for the invalid, sufficiently important in themselves, but rendered more so by its proximity to the watering places of the Pyrenees, which had long established for themselves a high place among the thermal establishments of Europe.

Nor had justice been done, in this work of Sir James Clark, to the climate of Pau in the few observations he had made. Drawing his information, in the gross, from other sources than his own discriminating experience, he had affixed a reputation to the qualities of the Pau climate, in reference to some states of disease, which our observations, from considerable experience on the spot, convinced us to be unmerited. Thus, for instance,* he

* CLARK *On the Sanitive Influence of Climate*, p. 193.

considered that 'invalids labouring under, or subject to attacks of rheumatism, should of course avoid Pau.' In this sweeping opinion, no distinction was made between the different varieties of rheumatism, or the causes on which they depend. In the sequel, it will be shewn, that rheumatism of an acute character, complicated with gout in nervo-sanguineous temperaments, frequently attended with tonic irritation of the digestive organs, and an accelerated state of the pulse, receives most marked palliation of the symptoms. And it is in the atonic form of rheumatism and rheumatic gout only, in badly conditioned habits of body, debilitated by long residence in hot climates, where the tone of the digestive organs is very much impaired, and derangement of the liver both creates and supports the symptoms that the climate of Pau is decidedly unsuitable.

Again, with regard to the relative influence of the climate of Pau and the waters of the Pyrenees, in affections of the mucous membranes, it was stated by Sir James Clark, Upon the whole, Pau appears to be the most desirable winter residence in the south-west of France, for invalids labouring under chronic affections of the mucous membranes. In the same class of diseases, the mineral waters of the Pyrenees are also very beneficial.' From this quotation, one would be led to suppose, that the same character of disease in mucous membranes is indifferently alleviated and cured by both, and that their mode of action is the same; whereas the climate of Pau acts beneficially, chiefly in diseases of the mucous membranes of an obstinately sub-acute character; for instance, of the trachea or bronchi, accompanied by a dry hacking cough, absence of healthy expectoration,

and quickened pulse with emaciation. The waters of the Pyrenees, on the other hand, are distinctly unsuitable in such a state of things, and are useful only where the disease is principally marked with diminished tone of structure, and increased muco-purulent expectoration.

In subsequent editions of his work, Sir James Clark has had the candour to suppress the passages just quoted and commented on, and has had the complaisance to give instead, a short *resumé* of meteorological and other details from the first edition of this work. 'The invalid,' he adds, 'will find full information in Dr. Taylor's work respecting the climate of Pau and the mineral waters of the Pyrenees. I am indebted to it for several corrections; but it was very satisfactory to me to find, that, in all essential points, Dr. Taylor's experience of the climate and its influence on disease, accorded with that given in the former editions of this work.'*

We have reproduced this matter, which Sir James Clark's courtesy has so completely set right, from a desire to avail ourselves of his important testimony with regard to the climate of Pau, which his first observations had a tendency to disparage.

To suggest some fixed principles applicable to the climate of Pau, not only absolutely but comparatively with other climates, the resort of invalids, and to the mineral waters of the Pyrenees, in reference to their effects upon disease, was the subject of this work as it originally appeared. A residence of some years in Pau, and annual visits to the mineral stations in the mountains in a professional capacity, as well as the kind assistance of native physicians, and a rigid scrutiny of

* Clark *On Climate*, p. 199, edition 1846.

many cases said to have been benefited and cured, were the grounds on which the author presumed to convey to others his own impressions. He felt, as now, the full responsibility of the task, and was aware that he ought not either to conceal, diminish or exaggerate the evidence in a matter so important to the well-being of a numerous class of the community, who, already weighed down by the pressure of disease, and yet buoyed up by hope, are too apt to be lightly induced, in search of a shadow, to leave home and friends, and to increase their sufferings by the fatigues of a journey, frequently to be deceived. On the other hand, there are, undoubtedly, many, *very many*, who might ward off the threatening consequences of predispositions both of an hereditary and of an acquired nature; and others who, ere disease has made much organic progress, might be restored to comparative health, by a *timely recourse* to the climate of Pau, and to the curative means of its neighbouring mineral springs.

In the hope of still more forcibly pressing these points on the public mind, and consequently of producing clearer views on the question of climate generally, and of Pau more particularly, we have been induced to publish the present edition. A professional experience of fourteen additional years has only strengthened the author's views, with regard to the principles he formerly laid down as to the climate's action in health and in disease. But still, he has found it desirable to re-write some portions, to re-model others, to omit parts, and to add much new matter, as well as to produce additional arguments to sustain his previous views. The geological and botanical sections will be suppressed, and the work

will be, in a corresponding degree, lightened by the substitution of matter of more general interest.

The plan now proposed to be pursued in this edition, is, firstly, to treat on the influence of climate generally, as *preventive* and *curative* of disease, and to indicate approximately the states of disease suitable to the individual climates to which invalids are usually sent, and often so, without strict reference to this indication; secondly, to treat of Pau and its climate, and the influence of the latter, as it affects the native and foreign population in health and disease; thirdly, to give a comparison of the distinct effects on health and disease specifically peculiar to Pau, Nice, Rome, Naples, Florence, etc., etc.; and fourthly, to give a description of the more important spas of the Pyrenees, and of the virtues and effects of their respective waters.

In his general descriptions, the author will confine himself to such matters as may be necessary and interesting for an invalid to know, and any opinions he may give, will be deductions from statistic facts, or from sources of information on which he can depend, and from personal experience. His readers will generally have the opportunity of judging for themselves, as the facts on which he forms his own judgment will be open to them.

The Pyrenees, an almost unexplored country by the English tourist, afford ample field for recreating the mind and invigorating the body. Here the scholar, the botanist, the mineralogist, the artist, and the sportsman will find varied and ample occupation. At Bagnères de Bizarre, for instance, we are brought back to the days of Augustus Cæsar, the conqueror of Aquitania. Here the

antiquary will meet with votive altars, erected in that conqueror's time, still in good preservation, and the remains of baths founded by his generals. Nor are antiquities of a later date, when England held sway over this and several other provinces of France, few or uninteresting. On the same mountains, the botanist finds the plants of opposite climes, and the geologist has ample opportunites afforded him to test his theories and add to his stock of facts; while the chase of the izzard, the chamois of the Pyrenees, the ibex, the bear, and the wolf, amidst the perennial snows of Mont Perdu, the Maladetta, and the loftiest peaks, afford to the robust and adventurous an interesting and healthy recreation.

Fresh combinations of beauty and grandeur start up before the eyes of the artist at every step, and the tourist may agreeably vary his occupations on the lakes and trout streams which everywhere abound.

The matters here alluded to can only, in the course of this work, be incidentally described, and then merely, in so far as the *distraction* afforded by them may be recommended as an auxiliary to medical regimen, or a relief from *ennui* to those, who, being in the possession of good health themselves, are yet compelled by affection or duty to accompany some invalid relative in search of health. Any notice of scenery must necessarily be meagre and sketchy; but this will scarcely be regretted, when recourse may so easily be had to the works of Mrs. Boddington, Lady Chatterton, Mrs. Ellis, Mr. Murray, and Mr. Inglis, and not least in point of interest, although a work of fiction, the 'Desultory Man' of Mr. James.

Still we shall occasionally vary our task, by availing

ourselves of short references to, and quotations from, the works of some of the few writers who had preceded us in the slightly beaten track of Pyrenean travelling; but then it will only be to lighten the dulness of a work essentially not of an imaginative or descriptive character, and where facts are concerned, to produce disinterested testimony to the statements and the opinions in the text.

In one branch of the subject of this work, there is, indeed, no deficiency in facts, viz., that which relates to the mineral waters of the Pyrenees and their therapeutic action on disease; but few and ill defined are the philosophic land-marks to guide the enquirer through this crude and undigested mass of matter.

Although the thermal establishments of France are under the strict control of government Inspectors, physicians of repute; and although many thousands annually resort to them for the cure of almost every ailment to which 'flesh is heir,' yet the principles, which regulate the exhibition of their respective waters, are still very deficient in precision, a consequence of which has been that where cases have been indiscriminately submitted to their influence, many have derived great benefit, while the diseases of others have been fatally aggravated by their use.

The following quotations taken from a document, which we cannot suspect of having examined the question in a hostile spirit, prove that our remarks are far from being unfounded.

At page 12 of this document* we read, 'And that

* *Report made to the Royal Academy of Medicine on the Mineral Waters of France during the years* 1834, 1835, *and* 1836, *in the name of the Commission of Mineral Waters.*

which has been said with regard to the choice of the waters in disease, has occupied also the attention of the Commission. It has seen that patients, and even sometimes physicians, choose them in a vague manner, and not always appropriately to the diseases to be treated, having often reference more to the vicinity of the patient to the source, or to certain localities agreeable to the physician, than to the salutary properties of the water, etc.; which circumstances explain the reason, why the patients do not receive all the advantages which these waters are capable of conferring.'

And further on, at page 13, 'The Commission is, in fact, convinced that medicine is no further advanced in a knowledge of the therapeutic effects of most of the mineral waters, than it was at the time, when chemical analysis was silent on the subject. We know no more with regard to the mineral waters of the Pyrenees, for instance, therapeutically speaking, than at the time when Bordeu explained, in terms so clear, so simple, and at the same time so true and so profound, everything connected with their properties; and, in our time, medicine has acquired nothing beyond this, although chemistry has, since his days, very much enlightened us with regard to their intimate composition.'

At page 15 we also find the following lines: 'Directing their attention as to the mode of using mineral waters, the Commission has seen with regret, that sometimes they are prescribed in incurable diseases, and in cases without hope, where the fatigue of the journey served only to hasten the fatal result. This treatment is so much the more to be regretted, because the patients in so hopeless a state, *are almost always sent away by*

the Inspectors from the sources, for fear that those of which they have the inspection, might suffer in reputation were deaths known to occur, and thus the patients so tossed about, know not whither to turn for solace.'

It is thus evident that there was, at least at that time, a great deal to be achieved in this important field of medical philosophy, before one could have hoped to see established trustworthy landmarks, so necessary both for physicians and patients, who had either to prescribe or to take of their own accord those remedies which Nature had so profusely supplied in this land of mountain and flood.

Since then, the mode of action of these waters on disease has occupied, more than formerly, the attention, not only of the medical Inspectors, but of physicians, generally. In the sequel, we shall endeavour to elicit from the mass of facts at command, some fixed principles, to serve as a guide, in the administration of these waters; and if those do not amount to the dignity of a system, they will serve, at least, as a light to point out the way to a more perfect result.

CHAPTER III.

OBSERVATIONS AS TO CLIMATE GENERALLY.— A KNOWLEDGE OF THE PROPERTIES OF ANY CLIMATE NOT ALWAYS DEDUCIBLE FROM METEOROLOGICAL DATA.— EXPERIENCE, AS TO ITS INFLUENCE ON THE HEALTH OF THE NATIVE POPULATION, A TOLERABLY FAIR GUIDE AS TO ITS EFFECTS ON THE HEALTH OF STRANGERS.— DIVISIONS OF CLIMATE INTO EXCITING, SEDATIVE, AND RELAXING.— THE GENERAL PROPERTIES OF EACH, WITH EXAMPLES *en passant*.—PAU AND THE CHANGES IT HAS UNDERGONE.— HINTS TO PERSONS ABOUT TO PASS A WINTER THERE.— SOME REMARKS ON THE MEDICAL TREATMENT OF DISEASE.— HOW CLIMATE MODIFIES DISEASES, AND CONSEQUENTLY, RENDERS A MODIFICATION OF MEDICAL TREATMENT NECESSARY.

IN investigations connected with the climate of any country, with a view to ascertain its influence upon health and disease in persons strangers to it, there are many circumstances to be taken into account. It is not sufficient to content oneself with merely noting the indications afforded by the thermometer and barometer, to describe the nature of the soil, the state of humidity and dryness, and the prevailing wind. A knowledge of these facts goes for much, certainly; but it is far from being the whole secret. We ought to endeavour to find out, how all these, and other scarcely appreciable circumstances combined, have influenced and continue to influence the condition of the native population, physically and morally, in health and in disease. We ought to try to discover and to describe the causes of their exemption, if any, from those constitutional predisposi-

tions as well as diseases, which assail the natives of other countries, less favourably placed; and to ascertain, if possible, any peculiarity of action the climate may have upon the symptoms of existing diseases, and the character which these most generally assume; for there can be no doubt, as a general fact, that *diseases are invariably modified by climate to a very considerable extent.*

By this process, we may arrive at some useful deductions, which may serve as rules for our decision: firstly, as to the kind of predisposition to disease in strangers, whose development may be prevented by a *timely recourse* to the influence of the climate so tested; and, secondly, when actual disease has occurred, as to the quality of the symptoms invariably benefited, relieved, or aggravated.

It is surely not too much to expect, that where, in any given climate, we find among the native population a marked absence of a scrofulous or lymphatic habit of body, of that state, indeed, unfavourable to the deposition of tubercles in the lungs and elsewhere, the same qualities of climate would tend to prevent the development of the worst results of such a habit of body in strangers hereditarily predisposed, or whose weakened organization, from residence in an unfavourable climate, or from continued bad health, would lay the system open to be acted injuriously upon, if left exposed to the same influences.

Again, if in a given climate, we find, among the natives, diseases, which in more exciting regions run an acute and aggravated career, here assuming milder forms, and this modification arising from the sedative

effects of that climate upon the nervous and circulating systems, it would be but a fair and logical conclusion, that diseases of strangers, depending upon mixed nervous and arterial irritation, might undergo similar modifications; and thus the course of morbid action be materially checked, if not altogether destroyed. Thus, if in any climate we find that its agency is decidedly of a sedative kind, and that it proximately acts, by modifying the tone of organs, we would, *a priori,* infer that such a climate would be unsuitable to that kind of diseased action, depending upon general want of tone and a low state of functional energy.

But again, if in any climate, we find that acute inflammatory affections—for instance, of the mucous membranes of the stomach, or air-passages—are a common disease with the natives, it would not seem to be a wise or logical proceeding on the part of a physician, to send to such a climate a stranger who was liable to be easily affected by these very maladies.

It is for these reasons, that we shall take, as the basis of our enquiries, the state of health enjoyed by the native populations of Pau, Nice, Rome, Florence, Naples, etc., etc.; the diseases to which they are most subject; the characters those diseases assume, and the statistics of mortality. This discussion will naturally bring us to describe the state of health enjoyed by visitors,—strangers to these climates,—the nature of those liabilities to disease, of which the climates prevent the development;—the diseases whose symptoms are likely to be benefited, and those likely to be aggravated, by the climates indicated.

Climates, at least those most resorted to by invalids,

may be divided into three classes, viz., *exciting*, *sedative*, and *relaxing*; and to a correct choice, in this matter, on the part of the invalid or of the physician who has to direct him, will depend, in cases capable of being ameliorated or aggravated by climate, success or failure.

1. As examples of *exciting* climates, we give Nice, Naples, Montpellier, and Florence.

2. Of *sedative* climates, Rome, and *par excellence* Pau.

3. Of *relaxing* climates, Pisa and Madeira.

In the *exciting climate*, we invariably find the following condition of atmosphere:—excess of dryness, highly electric state of the air, and during the spring months keen irritating winds.

In the *sedative climate*, we have a more neutral state of the atmosphere, a remarkable freedom from dryness on the one hand, and from communicable humidity on the other, and in Pau particularly, great stillness of the atmosphere.

In the *relaxing climate*, there is an excess of communicable humidity, with an elevated temperature.

The physician, who has to decide for a patient, for whom a change of climate has been considered desirable, can have no great difficulty in saying to which of these climates he ought to proceed, if he only makes up his mind *in time* as to the object in view in so sending him. Is it his object to stimulate functional languor, to quicken a slow circulation, and to rouse up dormant nervous energy? He would not recommend persons so circumstanced to proceed to *sedative* and *relaxing climates*, such as Pau, Rome, Pisa, Madeira, or Torquay.

Is it the intention to calm nervous and vascular excitement, to lessen inflammatory tendencies, and to assist

in producing functional repose? The medical adviser would not, with a full knowledge of the subject, send a patient in search of these objects to an *exciting climate*, such as Nice, Naples, Montpellier, and Florence.

Or if it were a *desideratum* to restore diminished tone, and to build up shattered strength, would one recommend for such purposes a *relaxing climate*, such as Pisa, Madeira, and Torquay.

As we are clearing the ground of some impediments, before rushing *in medias res*, we shall make a few observations on the position taken up by some medical men, in reference to climate, severally denying, as they do, its efficacy even as an auxiliary in the prevention and treatment of disease.

The following observations* are so pertinent to this matter, and so replete with common sense, that we prefer giving them rather than offer any arguments of our own.

'The influence of climate, in the animal economy, is now so well known and appreciated by the more observant part of the profession, that it would be a waste of time, in a work of this nature, to enlarge upon the advantages which may be derived from a well-timed and judicious change of it in the treatment of disease. The removal, for example, from a cold, humid and variable climate, to one which is warm, dry, and more equable, is well known to be productive of the most beneficial effects on a large class of invalids, when other therapeutical agents are of little avail, while, on the other hand, a contrary change is as certainly attended by a

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* *Cyclopædia of Practical Medicine*, vol. i., p. 419, art. Climate.

deterioration of the health, and often by a supervention of fatal diseases, even in persons previously in the enjoyment of good health.

'If our limits permitted, it would not be difficult to account for many of the effects of climate, whether favourable to health or the reverse. For instance, when we reflect on the powerful influence of a warm dry air on almost all the functions of the animal economy, but more especially its obvious agency in producing an equable distribution of the circulating fluids over the whole system, and particularly its effect in augmenting the activity of the circulation in the capillaries of the surface, and in diminishing in the same proportion the congestion of the internal vessels (a state which very generally obtains in chronic ailments), we have a satisfactory explanation of much of the benefit which invalids experience by a removal from a cold to a warm climate. If we take into account, also, the effect of the continual action of a bland atmosphere on the extensive surface of the respiratory organs, both as abating irritation of the lungs and enabling them more effectually to produce those changes in the blood that are essential to health, we have another very obvious explanation of the results observed.

'The contrary state of the functions, and of the circulation and the diminished energy of the nervous system, induced by a change from a genial to a cold and humid climate, will, with equal readiness, account for most of the evil consequences so frequently observed under such circumstances.'

The influence of a favourable climate on the functions of the human body, in preventing the development of

disease, by means of its action on the skin, deserves more particular consideration. It is known, that the same matters which are excreted by perspiration have been likewise detected by recent analysis in tuberculous deposits; and pulmonary consumption is found, on extensive investigation, to be most prevalent in those countries, where the humidity of the climate, both by its direct influence and by keeping the inhabitants within doors, tends to check the action of the skin.

The same may be said of sedentary habits, depressing emotions, and the functional inactivity of the skin, resulting from deficient capillary circulation, and obstruction of the pores from neglect of bathing.

The great influence exerted by these causes has been demonstrated by the experiments of Becquerel and Rodier, Edwards and Fourcault, who produced tuberculous disease in animals, by obstructing the insensible perspiration. 'In animals as in man,' says Fourcault, (*Causes générales des Maladies Chroniques*), 'the lungs are the organs most generally affected. The physiological relations, which unite them to the skin, are well known. In my experiments on the functions of this membrane, the artificial suppression of the perspiration has sometimes given rise to miliary tubercles in the lungs, and more rarely in other parts.'

The effects of humidity, and other causes by which the functions of the skin are impeded (including deficient nourishment), are, therefore, manifested by a deterioration of the quality of the blood, the amount of its red globules being diminished, and a state of cachexy or tuberculosis induced, leading to the deposition of tubercles in different organs. The prevention or arrest

of these symptoms is best accomplished by the combination of those remedial and hygienic means, which tend to improve the quality of the blood by invigorating the assimilating powers, and promoting the cutaneous action. Of these means, the operation of a climate in which exercise can be taken daily in the open air in winter, must be considered an important one, and is most likely to be permanently beneficial when had recourse to at a sufficiently early stage. The little success frequently obtained by sending patients afflicted, for instance, with pulmonary disease, to various localities, has been owing to the circumstance of the disease not being detected, or if detected, at an early stage, to its being treated solely by pharmaceutical means, under the unfavourable circumstances of climate and locality until too far advanced to be benefited by change of climate.

Mr. Edwin Lee, who has communicated to us some of his ideas on this mode of action of climate in the prevention of disease, has developed them at length in an essay, which had a prize awarded to it by the American Society of Rhode Island, which it is his intention to publish.

Before entering into those details respecting Pau as a residence, with which strangers, no doubt, would wish to be made acquainted, it may not be undesirable to say a few words with regard to the mode of travelling thither, and as to certain precautions to be observed before and after arrival there. In no respect has the time which has elapsed since this work first appeared, produced greater changes connected with Pau, than in the improved facilities and rapidity of travelling thither. Then there was not an inch of railroad from Boulogne

to Pau. A tedious and fatiguing journey, occupying nearly a week of incessant travelling, was the penalty the invalid had to pay before he could reach his destination. Now, the time actually occupied in travelling on the railroad, not including, of course, in this calculation the halts at different places, according to the wish of the traveller, is about thirty hours. That is, from Boulogne to Paris, six hours; from this place, to Bordeaux, thirteen hours; from Bordeaux to Dax, four hours; where the railroad terminates in the Pau direction; and then to Pau six hours by *malle poste*. In two years, the time will be shortened four hours, viz., from Dax to Pau. By railroad this town will then be nearer to London, in point of time, than the latter place was to Torquay twenty-five years ago.

And here we cannot avoid, *en passant*, noticing some other changes, which time, and the presence of English visitors, have brought about. Twenty years ago, there were not in Pau more than from 200 to 300 British subjects. Since then the number has more than quadrupled, and the means of accommodation have proportionately increased; and while, formerly, the leading motives for choosing Pau as a place of residence were those chiefly connected with economy, or with other local advantages, independently of health; at the present day, we find an invalid in almost every family. Pau has ceased to be what it once was, a place where economy of living, and the opportunities of quiet and retirement were equally combined. At present, the expenses of all kinds of living, etc., have increased one third, and quiet rural Pau is now, in so far as regards gaiety and pleasant society, unequalled, for its size, on the continent of Europe.

Another change has taken place in the facilities of sending and receiving intelligence. To say nothing of the Electric Telegraph, which now connects Pau with the rest of the world, a letter which formerly took five days to come from London at an expense of fifty sous, now arrives in fifty hours at the much diminished postage of eight sous.

When an English family has once decided to choose Pau as the place for a winter's residence, for the health of some one or more of its members, we take the liberty to recommend some precautions, and to make some suggestions, which our experience has convinced us to have been useful under many similar circumstances.

1. It would be well that the journey should be undertaken about the middle of September; for independently of the atmospheric changes which take place in England after this period, and to avoid which must be a great consideration with an invalid, threatened with, or suffering from, an affection of the chest, it will be desirable to anticipate the season of the equinoctial gales, which, as is well known, occur usually about the second and third weeks of September. Another advantage, also, connected with the climate, to the invalid in thus arriving early, is that usually a change of temperature taking place in Pau about the middle of October, from snow falling on the highest Pyrenean peaks, he is gradually introduced to, and gets accustomed to this change, by a short preparatory process of climatizing. The importance, also, of an early arrival in Pau, will be felt in affording to the stranger a better choice of lodging. It is of consequence to persons, for instance, with

inflammatory irritation of the air-passages, and analogous affections of the lungs themselves, that they should procure apartments with a southern aspect, at least with some of the rooms having this exposure; and as all have not this quality, houses so favorably situated are engaged very early.

2. And before leaving England, let not the healthy or unhealthy suppose, that because they are going to the South of France they are about to settle in a land of unbroken sunshine, where precautions as to dress and exposure to the atmosphere are unnecessary. This matter will be dwelt upon more fully in the sequel; at present it is particularly recommended, that every one should come *well supplied with articles of warm clothing,* and above all with *flannel*, which *ought to be worn next the skin by all.* Armed with these precautions, one main drawback to southern climates, viz., the great difference of temperature which exists between the sun and the shade, during the winter and spring, will, in a great degree, be met, if not neutralised, and the insensible perspiration encouraged on the surface of the body, so conducive to, and indeed, so essential to health in all countries and climates. There is one other recommendation connected with this subject, which we think of too great importance not to mention thus prominently, and this is a caution to all persons, strangers to a southern sun, not to expose themselves for any length of time to its rays, without the protection of an umbrella or broad brimmed hat. And this precaution is necessary at all times, for it would seem that the rays of a Pyrenean sun have some chemical or other specialty in their composition, which gives them an additional pungency, and

searching power. It is not an uncommon occurrence, to see persons suffering at all periods of the year, from the consequences of *coup de soleil* more or less severe, in the forms of fever, rheumatism, and tic douloureux, and that too from a cause which a little prudence might have prevented.

3. And should the object of the strangers' visit to Pau be for the alleviation or cure of any of those morbid affections suitable to its climate, or to the mineral waters of the Pyrenees, it will be desirable that he have a well detailed statement of his case drawn up by his medical attendant. It will not only be a guide at the time, but it will be a point to look back upon, by which to judge, at a more distant day, of the effects produced by the change of climate and other circumstances.

It is not an unusual occurrence, to find patients arriving in Pau from England with a plan of treatment, all *cut and dry*, which they are recommended by the medical advisers who have sent them, to follow out in a climate where the symptoms of the disease are modified by it, and, consequently, where a system formerly well adapted to the requirements of the case is very much out of place, under the altered circumstances of a different climate.

One of the good consequences to the invalid, in changing from a cold, windy and damp climate to a mild, calm and dry one, is, that from the sort of truce established, nature has a clearer field for working out her efforts at cure, and the physician becomes her *adjutant* rather than her *antagonist*; for, from the slow course which diseases run, he has a more favourable opportunity of watching the efforts nature is making to eliminate

the seeds of disease, or to repair damaged structure, and by gentle means to lend her a helping hand.

Every medical man, who has seen the same diseases under the influence of different climates, must at once acknowledge, that a distinct mode of treatment is necessary for each. For instance, in countries where diseases put on active inflammatory symptoms, bleeding and remedies which lower the heart's action are absolutely necessary. On the contrary, in a sedative climate, such as Pau, venesection is rarely if ever resorted to by English physicians; and its soothing qualities are often a substitute for digitalis and prussic acid. Again, with regard to purgatives, much smaller doses are required.

These circumstances, connected with the medical treatment of diseases, are evidently a great gain to invalids suffering under chronic maladies, and enable them, even in cases where a cure is not possible, to linger on the road with more comfort, from the diminished call for active medical interference.

CHAPTER IV.

APPROACHES TO PAU.—THE TOWN, AND VIEWS OF THE MOUNTAINS FROM ITS PROMENADES.—DESCRIPTIONS OF THEM BY JAMES, HODGSON, AND INGLIS.—PAU SEASON.—PRICES OF APARTMENTS.—HOUSE AGENT.—HOTELS.—SERVANTS.—HORSES AND CARRIAGES.—EXPENSES OF LIVING.

THE principal roads, by which the traveller approaches Pau, are, on the east, from Italy by Toulouse; or, before the establishment of the railroad, from the north, by way of Bordeaux. The Pyrenees, by the former road, are visible from a great distance, and perhaps the most extensive view is obtained from the neighbourhood of Toulouse, which is situated nearly opposite to the centre of the chain. Here the eye takes in the whole range, commencing with the most prominent points in the eastern extremity of the mountains, and the principal peaks in the Hautes and Basses Pyrénées as they approach the Bay of Biscay. On the north side also, as one approaches Pau, there is an opportunity of seeing from afar the effect of a sixty miles' continuation of these mountains, in the back ground, varying their aspect and expression by infinite and indescribable shades according to the distance, the state of the atmosphere and the period of the day.

As we come still nearer to Pau, from the north, 'on reaching the top of the hill, an unrivalled scene bursts upon our view. Immediately below is a broad plain or rather valley, with a little world of its own, within its bosom—

villages and hamlets, and vineyards and streams, rich in fertility and lighted up with sunshine, all peaceful and sweet and gentle, while directly behind the hill that bounds it on the other side, rises the vast line of the Pyrenees in all nature's grandest and most magnificent forms. It is impossible to describe the effect that such mountain scenery possesses; one gasps, as it were, to take it all in. After contemplating for any length of time these immense works of nature, if we turn to look at the dwellings of man, which seem crouching themselves at the feet of their lofty neighbours, the lord of the creation dwindles to an insect, and the proudest of his palaces looks like the refuge of a caterpillar.'*

Pau, the capital of the ancient province of Bearn, and now the chief city of the Department of the Basses Pyrénées, is situated about one hundred and twenty-five miles south of Bordeaux, and about seventy miles east of Bayonne, on the gulf of Gascony.

The theatre for ages of stirring events in the history of France and Spain, where the chivalry of its princes, on the one hand, guarded its territories from foreign yoke, and the enlightened fidelity of its people, on the other, organized the earliest specimen of legislative government, and boldly fought for the liberties they enjoyed,—Bearn, at the present day, though long incorporated with France, still claims for its population a degree of social, moral, and physical superiority, equal to, and in some respects surpassing, the most favoured districts of the kingdom.

Pau, which is about twenty miles distant from the

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* JAMES' *Desultory Man.*

nearest part of the Pyrenean chain, commands from all its promenades, and from the houses built on the edge of the terrace on which it stands, a view of the mountains to the extent of at least sixty miles. From these points some of the loftiest peaks may be seen; among others, the Pic du Midi de Bigorre, forming a promontory to the east; and the glaciers of the Neouville and the Vignemale sparkling in the beams of the noon-day sun, or glowing with roseate tints brought out by his setting rays. Directly in front of Pau, at a distance of from twenty-five to thirty miles, the Pic de Gers, the mountains surrounding the Eaux-Bonnes and Eaux-Chaudes, and the mitred Pic du Midi d'Ossau, the most uniquely grand of all the Pyrenees, stand out in bold and individual relief; while in a clear sky, the ever-varying lights, falling with eccentric playfulness upon the whole mass, now elevate them, in appearance, to a mysterious height, now sink them into comparative insignificance. Shortly, a dissecting light falls strongly upon the chain, which seemed before a hard dry line, and dissevers mass from mass, at an elevation of 8,000 to 10,000 feet, through an undulating gradation, until they terminate in the smiling Côteaux of Jurançon and Gelos, only 300 feet high, forming a luxuriant façade in the foreground, at half a mile distance from Pau, with the river rolling on between.

The object of this work is not to describe scenery: yet how difficult it is to desist; and fortunate it is for the Author that it does not enter into his plan, since he feels that no language of his can describe Nature in its beauty and grandeur—such beauty and such grandeur as meet even the dullest eye at every outlet of Pau. Can there

be anything in this world, as to scenery, more beautiful or majestic, than the panorama which greets the spectator from the Place Royale as he looks up the valley of the Gave towards the Pic de Bagnères, taking in the wooded headland of Narcastet on the one hand, and the Château of Bisanos on the other? What an unfading reminiscence for those who have visited Pau! Who that has once seen it can forget it?

Mr. Pemberton Hodgson, lately English Vice-Consul at Pau, who passed six years there, and had been a great traveller, thus recently, in his work entitled *Pyrenaica*, describes this view: 'I have seen the Bernese Alps more than once; to say I did not admire them, would be to say I had no taste, feeling, or love of nature in me; but I will admit, that perhaps I did not sufficiently appreciate them, for I was younger and had not seen all I have since seen. I thought them grand, sublime, and wonderful; but they did not touch or fascinate me; but when I saw the Pyrenees my heart leaped within me, I was paralysed and motionless, enraptured, struck not only with the might and majesty of the mountains, but with the variety and gentleness of the foreground.

'The winding river coming from afar and sweeping beneath your feet, past the venerable castle, and losing itself in the distance; the numerous villages, with their presiding churches; the green fields; the white linen at Bizanos; the fertile plain; the gracefully sloping Côteaux; all, even the eternal poplar on the river banks, was so lovely, that without the rugged background, Nature's sternest work, I should have been delighted; but the whole, the *mélange* of beauty and grandeur, light and shade, foreground and distance, caused emotions I cannot

fully describe, and which, after six years' residence and daily familiarity with the scene, I am still capable of feeling.

'How often have I seen the wonder-struck tourist, passing hour after hour, his eyes fixed intently on the glorious panorama, stroll away awhile, but to return again and gaze his fancy real; or on his tablet trace what was already traced on the faithful tablet of his memory.'

The town, which contains nearly 17,000 inhabitants, is well built, and many of the old houses bespeak the style in which their ancient owners must have lived, ere great political changes altered the relations of society. Formerly, a century ago or more, although the royal court had long departed from Bearn, its aristocracy, eminent from long descent and their patriarchal virtues, kept up much state and hospitality. But their mansions are now tenanted by strangers, and many of the oldest families live but in history. Still, there *are* families who have outlived stormy times, and whose graciousness of manner, and the happy tact of placing the stranger at once at his ease and on good terms with himself, point out the good stock whence they have sprung. Nor is this confined to any one class. From the highest to the lowest of the native population, politeness and good nature prevail. It is a virtue inherent in them. It is a happy remnant of the original patriarchal state, which one still finds throughout the Vascongada provinces of Spain and the adjacent Basque country.

Taking other towns in France of the same population and importance as a rule, Pau ranks tolerably high as to the state of its streets, the commodiousness of its houses, and the convenience of its voitures, etc., which are

almost indispensable to the English stranger. Thirty years ago there was not a house with a carpet, not a carriage to be hired,* nor, with one exception, a private carriage in the town; the houses were deficient in all that which we mean by the word *comfort;* and, until very lately, there was not a *trottoir* in any of the streets. Now, the houses are, to a certain extent, furnished according to English wants and views of convenience; carriages are to be had in abundance at a moderate charge; and every year improvements are taking place, to render Pau more agreeable as a residence. The streets can boast of foot pavements, and are well lighted by gas.

The town extends from east to west, and may be said to have three parallel streets. It is built upon a terrace which overlooks the river, at an elevation of 150 feet, and consequently faces the Pyrenees, and is protected on the north by the *Landes* of the Pont Long, which ascend very gradually to the distance of eight miles from Pau. The north wind is thus directed into currents, which, being attracted by the lofty mountains to the south, pass at an elevation considerably above the town: so that the clouds may be often seen quietly sailing onwards, when the leaves are unmoved on the lower level. From the west — the point from which the wind not unfrequently blows — the well-wooded park, a continuation of the terrace taking a curved direction, forms, at the

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* Some thirty years ago, a lady, who still resides in Pau, begged the owner of her apartment to procure a carriage to take herself and family to a soirée at the Prefecture. At the appointed time, a *diligence* with four horses arrived, being the only conveyance the town afforded, and which had also collected from other houses its full complement.

distance of a mile, a species of headland. This latter makes a linear intersection with the amphitheatre formed by the Côteaux of Jurançon, which embraces Pau to the south and south-west, and screens it and its environs from the worst consequences of the only bad-weather quarter—the west and north-west. The east and south-east winds and their combinations are scarcely felt, except in bringing dry and warm weather. So thus Pau frequently, one might say generally, enjoys a great stillness of atmosphere, often so complete as to leave a doubt as to the direction from which the wind really comes. So much is this the case, that it is said of a certain naval captain, who had buffeted many a breeze, that he left Pau in disgust, because, during the two or three years he had lived there, he so rarely encountered, in nautical phraseology, '*a capful of wind.*'

Mr. Inglis* thus cursorily describes Pau. 'It has always enjoyed the reputation of being one of the most interesting cities of the south of France; and altogether I think it deserves its reputation. It lies in one of the most beautiful and most abundant countries of Europe, in one of the finest climates; and the city itself is clean, airy, and abounds in every convenience, and in most luxuries. As for the environs of Pau, they are certainly beautiful. The Gave serpentines through the charming undulating country that surrounds the town. Grain, meadows, and vines, diversify the scenery, and innumerable country-houses are everywhere scattered around. Nothing can exceed the beauty of the promenades in the neighbourhood of Pau. Some lie along the side of the

* *Switzerland, the South of France, and the Pyrenees, in* 1830, by H. D. Inglis; p. 220. Constable's edition.

Gave, others along the banks of the smaller river, and within the town there is a large and shaded platform which commands a magnificent view over the surrounding country. Pau is a great resort for strangers; and I should think the most desirable of any of the towns which are selected by foreigners as a residence.'

The Pau season may be said to commence on the first of September, and to continue till the first of June. This arrangement, of course, is dependent upon two circumstances; firstly, The state of the weather both at the usual commencement and close of the season; secondly, The objects which the visitors have in view; and thirdly, The necessities arising out of their state of health. According to the usual average of the weather, it is not safe for invalids to remain in the higher regions of the Pyrenees after the commencement of September; nor is the atmosphere always sufficiently settled before the first of June, and occasionally not for some weeks afterwards, for a salutary sojourn at Barrèges, Cauterets, or even Eaux-Bonnes or Eaux-Chaudes. The summer heat scarcely sets in with intensity at Pau, before the middle or end of June; and there is nothing more to be guarded against by the invalid, anxious to escape from the sameness of Pau's sedative atmosphere, than to be seduced to take up his mountain quarters too soon.

By making early application for apartments, there is sufficient choice to suit the wants of either large or small families. There are in Pau and its neighbourhood at least three hundred and fifty sets of apartments, independently of the hotels; and many houses are now in course of construction. This competition will naturally tend to improve the quality of the accommodation and

cause the rents to be lowered; unless, indeed, the English population should go on increasing as it has of late years done.

The average rent of two-thirds of this number may be stated at from 2,500 to 4,500 frs. for eight or nine months; the remainder vary from 1,500 to 2,500 frs.

Some of the apartments have accommodation for twelve to fifteen persons, and all the larger ones would contain from six to eight people. The apartments are furnished with everything necessary for a family, *except linen and plate*, both of which may be hired in the town.

Those who may prefer living out of town have an opportunity of gratifying their tastes, as there are several comfortable houses to be let in healthy and airy situations, at distances varying from one to four miles. But these country residences interfere in a great degree with evening visiting, which is so very abundant in Pau, and which is considered by many to be almost a necessity, for those who are well enough to enjoy it.

Latterly a house agent, a Monsieur Gibertand, devotes his time to the letting of houses, the finding of servants, the taking of inventories, etc. He keeps a list of houses and apartments to be let, and may be applied to personally or by letter. His remuneration is a small per centage payable by the proprietor and tenant.

In the town, the houses are for the most part let out in apartments, so that there may be two or more families under the same roof; but in the event of any family requiring more extensive accommodation, or preferring an entire house, it is a matter not difficult of arrangement.

There are lodgings to be had at the hotels, either for families or single persons; by the latter, at a very moderate rate in private houses, and a bachelor may *abonner* himself in any of the hotels for a moderate sum per month.

The best hotels are the Hotel de France, Hotel de l'Europe, Hotel de la Poste and the Hotel de la Dorade. At all these hotels, they are well acquainted with the habits and tastes of the English, and are very anxious to anticipate their wishes and to consult their comfort in any way. Those who prefer to be served by restaurants, in preference to a cuisine at home, can be gratified either à l'Anglaise or à la Française.

The wages of French servants, are as follows:—a good cook may be hired from twenty-five to thirty francs a month; a man servant from forty-five to fifty francs; and a house-maid, twenty francs, for the same period.

Excellent carriages are to be had for three hundred francs a month, everything found; and for a drive, the charge is three francs the first hour, and two francs for every succeeding one; and four francs a day for a saddle horse.

The prices of substantial articles of living are somewhat less than in England; and even English luxuries cost very little more than at home.

CHAPTER V.

ENGLISH CHURCH AT PAU.— ITS ORIGIN, HISTORY, AND DIFFICULTIES.— ANOMALOUS CONDITION IN REFERENCE TO THE LAW OF FRANCE.— TRUST DEED OF SETTLEMENT BY THE DUCHESS OF GORDON.— FUNCTIONS AND POWERS OF THE WARDENS, ETC., ETC.— VICE-CONSUL AND BANKER.— MEANS OF INSTRUCTION FOR CHILDREN.

IN the year 1835, a desire being felt by some of the English residents at Pau to provide a more suitable place of worship, than that hitherto used by the congregation; a subscription was commenced, and certain sums were given, on the understanding that the building was to be exclusively English, but that the French Protestants were to be allowed the use thereof. As from that time up to the present day, many erroneous ideas have been entertained, a good deal of interest felt, and no small quantity of fruitless discussion encouraged, with regard to the position of the church;—in reference to its founder, to the French Government, to the congregation, and to the source of patronage, as well as to matters connected with its internal management—we have considered it advisable to enter into a few details, based on authentic materials. And we presume to think, that this short statement may interest many who have never seen or ever desire to see Pau, as showing the almost insurmountable difficulties which the French law interposes, to the setting aside in France of any building in perpetuity for divine worship in connexion with the Church of England.

On the arrival of the Duchess of Gordon in 1836, she subscribed a considerable sum towards the erection of the church, chiefly with the view of assisting the French Protestants.

The ground, on which the church was to be raised, was purchased in her name; owing to which circumstance, the whole property, according to the law of France, belongs to Her Grace.

In 1838, the building being in progress of erection, a deed was drawn up for regulating the affairs of the church, and determining the powers of the various parties connected or to be connected therewith. This deed, after undergoing the revision of the Bishop of London, the late Rev. Henry Blunt of Streatham, and the Earl Jermyn, was finally agreed to by the Duchess of Gordon, and executed by her accordingly.

It was the intention of the Duchess of Gordon to divest herself of the right of property in the church, and to place it in the hands of Trustees, for the benefit of the English and French congregations in perpetuity. It was found impossible, however, to create a legal trust for this purpose.

By the laws of France, no conveyance of land or property for charitable or religious purposes is valid, except authorised by an *Ordonnance du Roi.* Besides this, no religious establishment has any legal existence in France, unless authorised by the government. The Anglican Church never having received this authorisation, has therefore no legal standing or existence in that country.

On both these grounds, it was pronounced by the various lawyers consulted on the subject, to be impossible

to give any legal effect to the deed above mentioned. A plan was then proposed for securing the property in perpetuity for the purposes specified in the deed, by making over by a Deed of Gift to the French Reformed Church, through the Consistory at Orthez, under conditions similar to those embodied in the Deed of Trust. This course, however, involving, as it would necessarily do, an indirect recognition by the state of the Anglican Church as existing in France, was found to be equally impossible.

No means, therefore, being found of carrying out the intention of the subscribers, and giving legal existence to the Deed executed by the Duchess, it was agreed, on all hands, and fully understood that it should be held binding in honour on all the parties concerned.

The following extracts from a series of Resolutions passed at a meeting of the subscribers held at Pau, previous to the completion of the church, may throw additional light on this subject.

'That the thanks of the subscribers be presented to Her Grace the Duchess of Gordon, for having endeavoured, so far as was in her power, to meet the wishes of the English residents at Pau, and to establish legally what they had considered most likely to conduce to the good of the congregation, and the advancement of Protestantism in France.'

'That the English subscribers to the church at Pau, finding by the opinions transmitted to them, that it is impossible for the Duchess of Gordon to carry into effect the deed proposed by them and executed by Her Grace last year, the law of France not permitting any legal authorisation of a religious establishment indepen-

dent of the French churches, and it being evident that the property can be disposed of in two ways only, *either by being conveyed* to some person, or else given up *unconditionally* to the Consistory of the Reformed Church established in France, think that the intentions of the deed will be most effectually provided for, as far as the circumstances of the case will permit, by Her Grace the Duchess of Gordon retaining possession of the property.'

At a subsequent period, in order that some more settled arrangement might be effected, the Duchess offered the church, etc. to the municipal authorities of Pau, under certain stringent conditions. The council appointed a committee to consider the matter; no answer was ever returned, and after a year's delay, the Duchess withdrew the offer.

In the summer of 1839, the original Building Committee was dissolved, the works having been at a standstill for eighteen months, and a debt remaining on the building of 8600 frs. The Hon. Mr. (now Lord) Harris was then requested by the Duchess of Gordon to take the sole management of the affairs into his own hands. By his zeal and energy, the building was at length completed and opened for divine service in October, 1841.

The whole cost of the building, exclusive of the purchase of the ground, amounted to 53,308 frs., which sum was raised by voluntary subscription during several succeeding years.

Since the ineffectual attempts made by the Duchess of Gordon to divest herself of the church already described, Her Grace has left it, by deed of Gift, to the Rev. Lord Wriothesly Russell, with the understanding that his lordship should continue also, by the same process,

and so on from person to person indefinitely, in succession, the destination of the building to its present purposes. In the event of a break in this arrangement from oversight, neglect, or other causes, the property, by the law of France, would become liable to be divided equally among the heirs of the person holding the trust, but who had not provided for its transmission according to the intention of the original granter.

Under these circumstances, it is easy to see why the church has not been, and never can be, consecrated.

By the Trust Deed, provision is made for the nomination of a clergyman, by certain trustees named in it, the sanction of the Bishop of London being required to give effect to this appointment. This, according to the terms of the deed, is an annual one, but there has been no change since the first nomination fifteen years ago of the present incumbent, the Rev. Edward Hedges, A.M., of Queen's College, Cambridge, who, at the same time, received the license of the Bishop of London as chaplain to the British residents in Pau.

The deed also prescribes that the internal affairs of the church shall be under the direction of three wardens to be chosen annually by the congregation. The duties of the wardens are clearly defined. For instance, 'They shall possess full power and authority to represent the legal and equitable owners of the said lot or parcel of ground and the buildings thereon erected, in all matters relating to the conservation of the property, the payment of the taxes and the repairs of the fabric.' They are besides 'exclusively empowered to collect, receive and appropriate to the purposes specified, all monies collected from the English congregation,' and they 'are

required to forward at the expiration of their term of office to the *Trustees* in England *an account of the manner in which they have disposed of the sums collected,* and also a statement of the different English services performed during the year, and that the trustees shall forward the same to the Bishop of London,' At the annual meeting, also, for the election of churchwardens, the retiring wardens shall present their accounts, and declare what sum is to be paid into the Church Repair Fund.'

We have thus described at some length the duties and powers of the wardens, because of late they have been the subject of some discussion; but it would appear that once elected they are held by the trust deed responsible only to the trustees, to whom all financial and other reports are to be addressed. And the intention of confining these powers of management to the wardens, under the surveillance of the trustees, was evidently to discourage the entrance of the small end of any controversial wedge, and thus to prevent the introduction of innovations, not contemplated by the deed of trust, into the mode of conducting divine service, by pressure from without; a circumstance, considering the fluctuating nature of the congregation at Pau, and the differing opinions existing among the members of the church of England itself, not unlikely at some time to occur. The wardens have, by the Trust Deed, the power of refusing even the use of the pulpit to the incumbent, under certain circumstances, at the instance of the trustees and of the trustees alone.

The English service is maintained entirely by the rental of sittings and by voluntary offerings, without

any aid from the British government. The regular service commences on Sunday at eleven o'clock A.M., and four o'clock P.M. There is a library of books attached to the church, consisting of several hundred volumes, the greater number of which have been collected by the present chaplain from the donations of residents and visitors of former years. The library is open to the free use of all members of the congregation, on application at the vestry on Saturdays, from one to two o'clock, and places in church can also be taken at any time on applying to the beadle, who resides under the church; the price of each sitting is twenty francs for the season, as indicated by the Trust Deed. We find the following notice affixed in the porch by authority—'The chaplain, wishing to become acquainted with the members of his congregation, respectfully invites all persons newly arrived to favor him with a call or send him their name and address.'

The French Protestant minister is appointed by certain French trustees under the deed. The present minister is the Rev. Leonard Buscarlet, who has two or more services each Sunday.

Of late years, the great increase in the number of English visitors rendered an enlargement of the church necessary, and two years ago, it was decided by some of the resident English gentlemen to proceed with it, relying on their obtaining the funds by subscription among the annual visitors. The church has been consequently enlarged to nearly double its former size, at an expense of upwards of 16,000 frs., which sum has been already liquidated, making from first to last 70,000 frs. collected almost exclusively in Pau itself among the English

residents and visitors, a proof how highly they have prized the advantages and blessings of a well appointed celebration of their native worship in a foreign land.

Some few years ago an English vice-consulate was created at Pau. The present vice-consul is Mr. William Tayler, who acts also as banker to the English, a gentleman who, in both capacities, is deservedly popular with his countrymen.

It may be proper to make known to those desirous of coming to Pau with children, that good masters are to be found for all the branches of education usually taught. The Rev. Edward Walshe takes day pupils for classics, and has the reputation of being an able and successful teacher. Mr. Thomas White has a school for younger pupils, in the usual branches of education, including classics, and has given great satisfaction to parents. There are also experienced teachers of French, Spanish and German, and professors capable of instructing in the more advanced branches of music, drawing, etc.

There is likewise the Imperial College, where the classics, mathematics, and philosophy are taught. The boys may be boarded at the College, which is under a good system of discipline, great attention being paid to the health of the pupils. Although a Catholic Institution, no tampering is permitted or practised with the religious opinions of the pupils, a Protestant minister regularly visiting the College, and examining the boys who are of that persuasion; while every Sunday they are regularly conducted to the Protestant church.

CHAPTER VI.

DEFICIENCY OF PUBLIC AMUSEMENTS.—RUINS OF ST. LOUIS.—SOIRÉES AMONG THE ENGLISH.—FRENCH CLUB.—BRITISH LITERARY SOCIETY.—FOX-HOUNDS.—PROMENADES.—SPORTING.—PARK.—CHATEAU OF PAU.—HENRI QUATRE.—BERNADOTTE.—THOSE SOVEREIGNS COMPARED.

WITH regard to public amusements, Pau is confessedly deficient. Although there is a theatre, it is dirty and uncomfortable, and quite unfrequented by the society of the place. However, a theatre and public rooms are now being projected. The ruins of an unfinished church, neglected for nearly seventy years, is, it is said, about to be destined to this purpose. Before the first French Revolution, this church was commenced on a large scale and had arrived almost at the state to be roofed-in, when the political tempest, which bore everything down, stopped its further progress, and there it has remained to this day, the opprobrium of successive dynasties and systems, no one of them seeming to have had the energy or inclination, either to finish the building as a church, or to destine it to some other useful purpose. There it has been, for nearly three-fourths of a century, a disfiguring feature of the principal *place*, a cover for bats and owls, and a receptacle for divers kinds of unsavoury rubbish, animate and inanimate.

But to those who prefer rational gaiety and amusement, the private *soirées* during the winter months fill up the public void, and leave little else to be desired. Here

one meets with agreeable and accomplished people, and the time of those who have sufficiently good health to visit in the evening, or whose tastes lead them in that direction, never hangs heavily on hand. There are in Pau varieties of society to please the grave and gay, and all are agreeable in their way.

There is a club called the Cercle, on the principle of the London clubs, composed of French and English gentlemen, a small proportion of black balls excluding a candidate. The permanent members are limited to 100, and candidates for admission have to wait for years before they can be elected. But there is a very liberal provision as affecting strangers. Permanent members have the privilege of introducing them for fifteen days without any charge; and after this they can, on being simply proposed and seconded, be introduced without any ballot as temporary members for three or six months, on paying 25 frs. for the first, and 40 frs. for the longer period. There is a reading room, where French, English and Spanish newspapers are taken; there are also card rooms, smoking rooms, a billiard room, etc.

An attempt is now being made (February, 1856), to get up a British Literary Society at Pau; as it is a scheme, which, if successful, will materially contribute to the convenience of the English at Pau, we give the following extract from the prospectus issued by its promoters, with the wish that their views may be realised.

'It is known to the English frequenters of Pau that for some years past the want of a good English library has been growingly felt; a library affording opportunities for study, reference, instruction, and amusement, resources of a more extended description than those gene-

rally found in any mere circulating library, while including all those that such a library and reading-room offer in the way of the newspapers and periodical literature of the day.

'Looking to the steady yearly increase of the English society collected for so many months of the year at Pau, it has appeared to many that facilities exist now for the formation of such an institution, sufficient to justify an attempt at a commencement, and to invite all those who must feel an interest in furnishing so useful a resource to many removed from their usual avocations and pursuits (and of which they also can avail themselves), to support the effort now being made.

'It has been thought that by at once starting a reading-room with the limited resources naturally at the command of an infant institution, and appointing a body of Trustees, and Committee of Management, individuals may (independently of their subscriptions as members) be induced by gifts of books, which they may be willing to leave behind them at Pau, and otherwise, to assist in the formation thus of a permanently useful library, which it is assumed, may in a few years attain considerable proportions.

'With this view, as many English as could be convened for the purpose, met, and the following scheme for the establishment of a 'Permanent and accumulating Library and Reading-Room at Pau,' having been elaborated, the originators are desirous to submit it, by this prospectus, to all those who may have been unable to assist at the previous meetings, or to whom they had been unable to obtain access, in order to invite their co-operation.

'That a society, to be called the 'British Literary Society of Pau,' be now formed of all residents or visitors who are willing to join it.

'That the subscription from this date till the first of November next shall be 50 francs, and from that day 80 francs a year.

'That, after the society is constituted, admission shall be by ballot.

'That the affairs of the society shall be managed by a committee, elected annually by the members.

'That the surplus funds, after paying for an apartment, attendance, firing, lighting, etc., and for a proper supply of journals and periodicals to the reading-room, shall be spent in the purchase of standard English books.

'That three Trustees, resident at least part of the year in Pau, shall be appointed, and that all the property of the society be vested in them; and that they shall be the proper parties to receive and acknowledge, on behalf of the society, all donations of books which may be made to it.

'That all residents and visitors at Pau, on the introduction of a member, may have the use of the library on paying a subscription of 50 francs a year.

'A provisional committee having been appointed, have framed regulations, hired an apartment, ordered journals and periodicals, and taken steps to obtain the authorization necessary to open the society.'

This authorization has been accorded, and the Society is now (May 1856), definitively established.

Formerly when the English society of Pau was small a custom prevailed, which, at the time, had few inconveniences, and some advantages, namely, that the last

comer called on those who had arrived before him, if he wished to make himself acquainted with the Society; but, at the present day, the increased reputation of the place, and the facility of travelling by railroad, have produced annually so numerous and mixed a mass of population, that the custom, from discouragement and impracticability, has fallen into disuse; and society now, after a time, shakes itself into form, and finds its level, as in many other places.

For several years past there has been, at Pau, a pack of foxhounds, sometimes belonging to individuals, and at other times supported by subscription. During the last winter, 1855 and 1856, there was one on the latter principle, hunted by Mr. Power. The expences of the establishment, which included 12½ couple of hounds, amounted to 600 francs a month, but to hunt the country well, 10 couple more hounds would be required. For from 8000 to 9000 francs a year, the Pau hounds could be properly kept, and the master insured against loss, while at the same time, he would have ample means to enable him to show as good sport as the country allows. This last season there were but few blank days. Any English sportsman wishing to hunt with the Pau hounds, should bring out horses from England. Weedy animals of four years old may be found at Pau; but by the time they are broken in, and fit for work (which it is more than probable they never will be), it will be found that an English horse for which £100 has been paid, will be nearly as cheap, and incomparably better.

We are happy to find that, at present (May, 1856), a sufficient sum was subscribed at the conclusion of the last season, to warrant the present master of the hounds in

keeping up the establishment during the summer, which will thus be in a state to take the field next winter.

The facilities for taking air and exercise at Pau, either in a carriage, on horseback, or on foot, are abundant. Five principal highways, kept in excellent repair, radiate from Pau, and command views, not only of the Pyrenees, but also of the tamer but still beautiful scenery of the plains. On horseback, rides may be varied to any extent, among the undulating and well-wooded *côteaux* to the south; while the pedestrian, if in good health, may make many pilgrimages through green lanes and clustering vineyards; and although much cannot be said of a field for the sportsman's pursuits, still there is sufficient to act as an incentive to take air and exercise. At the early part of the season, after the corn has been housed, at some five or six miles round Pau, the quail and partridge, particularly the former, may be found in sufficient quantity to afford sport; and during the winter months, woodcocks, snipes, and wild ducks, at no great distance from Pau. There is another sport of a more exhilarating and manly kind, viz., that of hunting the izzard and the bear in their native fastnesses on the mountains, and searching for the *coq de bruyère* (the capercailzie of Scotland) amidst the black pines on the summits of lofty peaks; but a description of these sports we shall reserve to the sequel, when we come to speak of the Pyrenees themselves.

The principal promenade is the Park, a terrace extending a mile, overlooking the river, and well wooded, and one which is almost always practicable by lady promenaders, if three hours of sunshine succeed

thirty-six hours of rain. Its soil is so absorbent, and the atmospheric properties of Pau so peculiar, that in this short space of time, the principal walks, even during the winter months, become dry.

Mrs. Ellis*, in speaking of the Park, thus describes it:—'Impatient to become acquainted with a place where we expected to spend some months, I took the earliest opportunity of quitting the hotel, and following the tide [of promenaders] I had observed, soon found myself at the entrance of a spacious and noble avenue of trees, leading to a promenade, which is justly celebrated as being one of the most beautiful in the world. It is called the Park, and consists of a range of high ground, running from east to west, parallel with the river Gave, thickly covered with magnificent trees, chiefly beech, and laid out in walks of every variety, some straight and others serpentine, some leading along the highest ridges and commanding the most extensive views, while others wind along the foot of the eminence, beneath the shadow of the loftier trees, and others still narrower and more intricate are nearly lost among thicker foliage and closer underwood, as if to suit the different tastes and dispositions of the many strangers from distant lands, who meet here to enjoy the luxury of this delicious climate,'—'and a motley concourse there are; invalids of every stage, from mere delicacy down to helpless disease, are seen basking in the sunshine, or leaning on the arms that would be stretched forth, if it were possible, to snatch them from the grave.'—'Yet on the

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* *Summer and Winter in the Pyrenees*, pp. 32, 33.

other hand, it is a spectacle which scarcely can be contemplated without feelings of gratitude and joy, to think that there is such an atmosphere and such a scene accessible to so many of the inhabitants of less genial climates, and that the health and vigour of which so many are in search, so often are restored to them beneath these sunny skies.'

As the view from the Park combines, in one harmonious whole, all the elements which constitute a perfect *coup d'œil* of beauty and grandeur: and as the description in the *Desultory Man,* contains much spirit, without exaggeration, it is here quoted. 'The highest walk, extending for nearly a mile, commands a most beautiful and ever-changing view of the mountains, which lie pile above pile stretched along the whole extent of the southern sky. Indeed, they form a scene of enchantment, and are never for a moment the same, sometimes so involved in mist, that they form but a faint blue background to the nearest hills, sometimes so distinct, that one might fancy that he saw the izzard bounding from rock to rock. The course of the sun, also, alters them entirely by the difference of the shadows; and the clouds frequently rolled in white masses, half way down their peaks, give them an appearance of much greater height than when they stand out in the plain blue sky. But, however they may appear, even at the times they are clearest, there is still that kind of airy uncertainty about them which makes one scarcely think them real. They seem the bright delusion of some fairy dream; and, indeed, I was almost inclined to think it a deception, when on waking, the third morning after my arrival, I looked for the mountains, and found that like Aladdin's

palace, they were gone, not a vestige of them remaining —not a trace where they had been. The sky, indeed, was cloudy, but the day otherwise fair, and to any one unaccustomed to mountain scenery, it would appear impossible, that any clouds could hide objects, at other times seen so near. But so it was; for two days we saw nothing of them; and then again the curtain of clouds rose majestically from before them, and left the whole as clear and as grand as ever.'

The chief object of interest in Pau, after its scenery, is its *château*, a fine old building mingling the military architecture of the thirteenth with that of the three succeeding centuries, and viewed with great veneration by the Bearnois, as the birth-place of their beloved Henri Quatre. The chamber in which he first saw the light is still preserved, although very lately modernized; and a large tortoise-shell, his cradle, is exhibited under a satin and gold canopy, with armorial supporters. His late Majesty, Louis Philippe, had expended large sums on the restoration of this, the first abode of the common ancestor of the Bourbons. Furniture of the epoch of Henry, or as near to it as possible, had been selected by antiquaries. His present Majesty, Louis Napoleon, is also urging on, with equal good taste and zeal, the restoration of the building, shewing himself superior to dynastic associations, and thinking only of the preservation of an ancient historic monument.

All reminiscences of Henry are treasured by the natives with great pride and devotion, and from their historical interest, are objects of curiosity to strangers. A mile from Pau, the house where he was nursed still exists in the village of Bilhères and many legends are

cherished of his feats in love, ere those in war supplied so important a page in the history of Europe.

From this birth-place of one great monarch, a three minutes' walk brings us to the house where another was born, Bernadotte, the late King of Sweden. It is a small two-storied house; but an interest attaches to it belonging to few palaces.

The two Bearnese kings had, generally speaking, several points of resembance in common. Both, by their exploits, arrived, although from distant and different starting points, at thrones, to which they never seemed destined. Both emancipated themselves from positions the most difficult, as they also surmounted great obstacles by their talents and courage; both made themselves beloved by their soldiers from their generosity, and martial spirit; both came to be adored by their subjects from preserving on the throne that good-heartedness mingled with dignity, that familiarity sustained by nobleness of soul, which they had imbibed with their Bearnese manners; both united to a masculine energy, which attached to them spirits of similar mould, a charming affability, which would have gained to their cause a whole people, one by one, if each individual who composed it, could have had the happiness—as Madame de Stael has said—of a quarter of an hour's conversation with them; both, in short, after being great captains became great kings.*

But in one respect, at least, what a singular contrast do their respective histories display. One, the descendant of a long line of princes, the Protestant sovereign

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* *Le Château de Pau,* par BASCLE DE LAGRÈZE.

of a small state surrounded by powerful Catholic neighbours, educated in the severe simplicity of the Protestant creed, and practising its upretending worship in the now Catholic church of St. Martin, then, and for many years a Protestant temple, did, in after life, to consolidate and preserve a throne which he had gained by his prowess, conform to the church of Rome, with its splendid ritual and imposing ceremonies. The other, sprang from the people, worshipped in his youth at the same church of St. Martin, and, afterwards, to secure a throne conferred upon him as a tribute to his bravery and ability, renounced the gorgeous worship of his youth for the simplicity of Protestantism.

CHAPTER VII.

DEPARTMENTAL ARCHIVES.— DOCUMENTS OF HISTORIC INTEREST.— LOCAL ANTIQUITIES.— CHURCH OF MORLAAS.—CATHEDRAL OF LESCAR.— MAISON CARRÉE OF NAY.— CHATEAU OF COARRAZE. — CHATEAU OF MAZÈRES.— ROMAN MOSAIC REMAINS.— MRS. BODDINGTON'S SKETCHES.

THE departmental archives of Pau, contain some thousands of documents of great interest to the antiquary; consisting of autograph letters from illustrious and historic personages, and other curious documents preserved during centuries.

They have been carefully arranged in a form, to be consulted by connoisseurs in these matters, and have been preserved with great care. The present keeper of the archives most politely points out to the visitor that which is most interesting, and a publication entitled '*Le Trésor de Pau*' will much facilitate the labours of the enquirer.

There are different objects of antiquarian interest within the compass of a morning's ride from Pau, which will well repay the person making it. An excursion always possesses greater interest, and is even more conducive to health, if it has an object. We may briefly instance the church of St. Foi, at Morlaas, six miles to the north-east; the church and town of Lescar, four miles to the west, with its monuments of princes and renowned characters of history; the Maison Carrée, at Nay, nine miles further in the direction of the Pyrenees,

and a little further on the château of Coarraze, where Henri Quatre spent his boyhood, educated like the hardiest peasant.

Morlaas claims the honour to have been the first residence of the ancient princes of Bearn, as the church of Lescar was their last resting-place. Its church dates from the year 1078, and is interesting to the antiquarian as a specimen of the christian architecture of that remote period. It is, says an author* remarkable for his learning and talent, 'an historic monument of great interest.'

There the Viscounts of Bearn came to engage themselves by a solemn oath, to observe the laws and venerable privileges of the people; on which their sovereignty reposed. They swore to render justice to the poor as to the rich, to govern as good barons, and to respect the rights of the seigneurs, their vassals, and those of the commonalties, not less dear to them. There, on the same altar, it was, that Gaston IV., on his return from Jerusalem, of which he had been one of the first conquerors, and before going to die in combating the Moors on the plains of Aragon, came to grant, and to swear to, the privileges of Morlaas; that admirable example of legislation, the finest, and one of the most ancient of the middle ages.

Lescar, which has played so important a part in the history of Bearn and Navarre, is full of interesting and touching souvenirs. Its bishops held the rank of premier barons of Bearn, and often they doffed their garments of peace to fight the infidel Moors at the head of their dependants. Nor were they of less importance

* *Histoire du Bearn et du Pays Basque*, par MONS. A. MAZURE, p. 530,

as civil governors. The Bishop of Lescar presided over the legislative states; and, in all matters affecting the public weal, their presence and sanction were equally necessary.

One can trace still the ruined remains of the ancient fortifications of the town; and its cathedral, a monument of ages long gone by, is worthy of a visit. It is not only curious from its architecture, but also from its containing the ashes of illustrious heroes and heroines; namely, those of François Phœbus, Jean d'Albret, Catherine, Queen of Navarre, Marguerite of Foix, Jeanne d'Albret, and of a great number of prelates and warriors.

As the antiquaries of the country have not made up their minds as to the origin of the Maison Carrée de Nay, it cannot be expected that we can throw any light on the subject. It is, although on a small scale, a monument of architecture unique of its kind, and is supposed to have been built by Marguerite de Foix, at the commencement of the fourteenth century. However, this may be, it will be no great labour to the stranger to visit it and judge for himself; for to Nay is a pleasant hour and a half's ride or drive, and the delicious air of the place, independently of the scenery and of the Maison Carrée into the bargain, will fully recompense him for his trouble.

A few miles further on, we arrive at the Château of Coarraze, where Henri Quatre passed his infancy, entrusted to the sage superintendance of the Countess of Miossens. Here, leading the hardy life of a peasant boy and mixing with his future subjects at their rustic games, he imbibed the moral and physical qualities,

which in after life shone out in the just and able king, and in the brave and indomitable general.

All that now remains of the old castle, is a tower, whose worn staircase leads one in imagination back to the illustrious dead, who, during the course of ages, imprinted the evidences of their passage on the stubborn stones.

A modern mansion now occupies the site of the old château. It belongs to M. Dufau, Premier-President de la Cour Imperiale, a man of obliging and polite manners, who allows strangers to visit his house and grounds. Frequently, during spring and autumn, the English make *pic nic* parties to Coarraze, to enjoy the magnificent scenery and delicious air of the neighbouring mountains.

On returning to Pau by the opposite bank of the river, at three miles from that place, there is the Chateau de Mazères, recently restored. This chateau was, according to Olhagary, one of the oldest buildings of the kind in Bearn, and was the refuge of the first apostles of the reformed worship, when Antoine de Bourbon, in obedience to orders from the court of France, was obliged to chase them from Pau.

In the month of March, 1850, a discovery was made in the territory of the commune of Jurançon, near the Pont d'Oly, two miles from Pau, in a meadow situated on the left bank of the Neez, between that rivulet and the road from Pau to the Eaux Bonnes, of the remains of an edifice, whose plan seems complete, and of which several chambers have preserved their pavement in coloured mosaic.

There was a tradition, that on the spot where this mosaic was discovered, and on a corresponding point

on the other bank of the Neez, the soil concealed vast constructions. Small cubes of marble, stone and baked clay, frequently found in these situations, gave considerable force to the tradition, and these indications stimulated a young enterprising Englishman, Mr. Baring Gould, to make some experimental excavations, the result of which much more than realised the most sanguine expectations of the diggers. Great interest was felt at these discoveries; and a subscription, originated by the English visitors, produced a sum sufficient to complete the bringing to light of the curious and venerable remains as they now appear. The edifice was found to be composed of sixteen chambers, eight of which had preserved the greatest part or more or less a considerable part of their coloured mosaic pavement. These chambers are mostly of considerable extent, as will be seen by a passing reference to the following measurement of some of them:—

1. For instance, on the east and parallel to the course of the Neez, extends a gallery or portico, of more than 30 yards in length, and of nearly 4 yards in breadth. The design is composed of three compartments.

2. At the northern extremity of this gallery is a rectangular piece of $4\frac{3}{4}$ yards in length, by $3\frac{3}{4}$ in breadth.

3. To the left of the gallery is another rectangular piece of about $4\frac{1}{2}$ yards by $3\frac{3}{4}$, where the pavement has entirely disappeared. The subsoil of this, as well as of several other rooms, is traversed by conduits in masonry, evidently for the purpose of conveying water to and from these chambers.

4. In the axis of the great side of the gallery, there

exists an *Atrium* or court-yard, composed of corridors enveloping an *Impluvium*, or receptacle for rain water. This *Atrium* is terminated by a *Hemicycle*. The rectangular part has a length of nearly 10 yards and a breadth of 8 yards; the basin of the Impluvium has $5\frac{1}{2}$ yards to $3\frac{1}{4}$, and the diameter of the Hemicycle is $5\frac{1}{2}$ yards.

5. To the left of the Atrium there is a rectangular piece of nearly 4 yards by $4\frac{1}{2}$.

There are other chambers, the principal ones measuring as follows:—4·55 to 2·49 yards; 12·40 to 6·82 yards; 6·80 to 2·50 yards; 7·82 to 6·83 yards; 6·82 to 8·02 yards.

Mr. Charles Lecœur, in a memoir inserted in the 'Bulletin du Comité de la Langue, de l'Histoire et des Arts de la France,' published under the direction of the Minister of Public instruction, says, that circumstances had led to the belief 'that these ruins belonged to an edifice built by the Moors at the time of their invasion in the eighth century; but this supposition seems scarcely deserving of discussion, for in the first place it is certain that the Moors did not penetrate into France by Bearn; but only traversed it in their flight, during which they founded nothing, but on the contrary destroyed every thing that came in their way; and, secondly, if we except the lions of the Alhambra and the pictures of the Hall of Judgment, painted by a renegade Christian, we have never found in the Arab edifices representations of animals. Here, on the contrary, we have them in great number. But that which appears to us more conclusive still, is that the plan of the building under consideration and all the details of these mosaics indicate, without

doubt, a Roman edifice. These ruins appear to us, then, to belong to the epoch of the Roman domination. The obstinate resistance of the peoples of the *Novempopulariæ*, of which Bearn made a part, rendered the creation of numerous and important military posts necessary. So at Guindalos, on the height to the north-east, and a little distance from these mosaics, existed a camp, which defended the entrance of the valley, of which the traces are still visible. It is, therefore, probable that the chiefs had caused to be constructed at the base of the camp, on the borders of the Neez, either a villa or an establishment of baths.'

On this latter supposition, the different pieces which compose the edifice may be supposed to have been utilised as follows:—The gallery might have served as a promenade; a second chamber as a robing room; the Atrium and Hemicycle as places for conversation; one, a room for reposing after the bath; three bathing rooms; two tepid bath rooms; a room for anointing the body; two chambers for vapour baths, and an adjoining piece for storing the wood used for heating the vapour baths.

These speculations may, in the estimation of some, be considered to be rather fanciful, but a close inspection of the plan of the ruins, with their various conduit pipes, their furnaces and other appliances for an establishment of baths, and the constant practice of the Romans to institute them wherever they went, give a strong colour of probability to the supposition.

The ride to *La Pietad,* over the *Côteaux* of Gelos, is one full of striking scenery. Indeed, mounted on the quiet sure-footed ponies of the country, the rides may safely be varied in all directions, either in search of

healthy exercise or picturesque situations, each hundred yards of progress revealing fresh combinations of smiling beauty and majestic grandeur. 'Through every opening, from every height, the mountains, shadowy or pronounced, are visible, unless it be when the clouds drop low, and then the rich and lovely *Côteaux* have it all to themselves, and make another kind of country of it; peaks and eagles vanish, and vines, ploughshares, woods, and woodlarks, the thrush, the linnet, and the hawthorn bush, come into play. I have never seen a country more beautifully ridged; one wooded line runs parallel with another, not stiffly, but in soft and graceful undulations; a third and higher one stretches off beyond; valley after valley lies behind them, full of silence, shade, and freshness; and as there are literally no bad bits here, every country house has at least a fine position, usually a pleasant country character, and often woods and lawns that we love to liken to our own England.'*

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* Mrs. Boddington's *Sketches in the Pyrenees*, vol. i. p. 213.

CHAPTER VIII.

ANOMALIES CONNECTED WITH CLIMATE.—THE SENSATION OF HEAT OR COLD, BY THE HUMAN FRAME, NOT ALWAYS IN UNISON WITH THE INDICATIONS OF THE THERMOMETER; NOR DOES THE AMOUNT OF FREE DAMP IN THE AIR BEAR ALWAYS A RELATION TO THE QUANTITY OF RAIN WHICH FALLS.—INSTANCES OF THESE.—SIR JAMES CLARK'S AND MR. ERSKINE MURRAY'S OBSERVATIONS ON THE CLIMATE OF PAU.

ANY person who has had experience in the treatment of disease, and who has seen similar diseases in similar temperaments, under different geographical conditions, must confess that the beneficial effects of any one climate over another are not always in unison with conclusions drawn from facts indicated by the usual philosophical instruments. Still, if not always unerring guides, these indications at least help us on the road, and where they are deficient in accounting for the results, they lead us in search of auxiliary causes, and thus enable us to arrive at some knowledge of the peculiarities of climate, and their influence upon the human frame.

We find many anomalies connected with climate, independently of its degree of latitude, which influence its temperature and degree of humidity; such as the shape of the countries in which the different districts may lie, the position of a hill, favourably situated as a shield from the bad-weather-quarter, or the reverse; and other circumstances, not readily observable as causes, but fully appreciable in their results. Thus Middlebourg, which is a degree further south than Amsterdam, ought to have

a mean higher temperature of 2°, whereas it is 4° lower. The town of Brussels has not its mean temperature so high as Amsterdam, although it is a degree and a half more to the south. Marseilles is more than a degree to the south of Genoa: the mean temperature of the latter ought then to be one degree less than that of the former; but it is, on the contrary, two degrees higher. It would not be surprising that Marseilles should have a climate warmer than Avignon, which is situated more to the north, and in the interior, and that the winters should be here less cold and the summers less hot: but what is the cause which renders the mean temperature of Marseilles lower than that of Avignon? Rome and Perpignan have exactly the same mean temperature, although Rome is a degree more to the south. It may be given as a reason, that Rome is influenced by the Apennines; but Perpignan is at the foot of the Pyrenees.*

It is not merely a climate possessing a high thermometric and barometric standard, which can or does afford a *panacea* for all those diseases, for the relief of which people fly from cold and moist countries. The varieties of atmosphere are so different, from local circumstances, in different places in the same latitudes, that an intimate knowledge of the peculiar details, as they operate beneficially or otherwise, is required, in conjunction with general meteorological *data,* to fix a rule as to the medical fitness of any climate as a remedy; and thus experience comes in aid of philosophy.

For instance; we shall have a higher degree of temperature marked by the thermometer in one country, yet

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* *Annuaire du Bureau des Longitudes* for 1834.

it shall feel colder to the sense, and the body shall actually be robbed of more animal warmth, than in another where the temperature is some degrees lower. The prevalence of certain winds blowing with unmodified force, and an excess of *free communicable humidity* in the air, far more than injuriously overbalance the benefits of a higher temperature in its effects upon the human frame; while certain electric states of the atmosphere add, at one time, fuel to diseases depending upon mixed nervous and inflammatory irritation; and at another, tend very materially to improve the type of maladies connected with weakly and badly-conditioned temperaments; and thus confound our usual reasonings from barometrical indications.

Thus at Nice, where during the spring months the temperature is $2\frac{1}{4}^{\circ}$ higher than Pau, the healthy and unhealthy feel, to use their own expression, *cut in two* by the Mistral, which blows over Provence from the north-west; and still more so from the easterly winds, that begin in March and continue to the end of April. At Rome, again, where the temperature is 3° higher than at Pau, the Tramontana blows with a severity almost equaling the Mistral; while at the same season in Pau the weather is mild and sedative, from the almost total absence of wind, and from other atmospheric circumstances peculiar to the climate.

We may also observe, that the quantity of rain indicated by the rain-gauge as having fallen in any one place, does not necessarily determine the character of its climate as to humidity. This is remarkably the case with Pau, where the rain-gauge and the hygrometer, or instrument for measuring the quantity of moisture in the atmosphere,

are much at variance, not only absolutely, in so far as Pau is concerned, but relatively to other places. For instance, some years ago, when great quantities of rain fell in the south-west of France, as well as over great part of Europe, the hygrometer at Pau did not show a higher range of scale, than varying from 70° to 85°; while at Bagnères-en-Bigorre, thirty-six miles from Pau, further from the sea, and consequently from the bad-weather-quarter, it showed an almost permanent range of 20° to 25° higher on the same scale.

There are some circumstances, although familiar, which we shall give, as illustrating the peculiar absence of *free communicable humidity* in the atmosphere at Pau. Although considerably more rain falls in Pau than in London and in some other situations in England; yet, from the absorbent nature of the soil, and from some peculiar electric state of the atmosphere (for the barometer, during some of the winter and spring months, most strangely rises on the approach of rain, and falls upon that of dry weather), the ladies, even during a continuance of rainy weather, find that their hair (a living hygrometer highly sensitive to an overcharged state of the atmosphere) retains the curl much better than in England. Indeed, so much is this the case, that some who in England were obliged to wear the hair *en bandeaux*, find that it now curls without effort. Another familiar proof of the deficiency of free moisture in the atmosphere may be given, viz., that steel articles of furniture are found little affected with rust, even in unoccupied houses; nor do the walls of the latter show marks of damp. It may be remarked also, that it is hardly ever necessary to air, by the fire, flannel articles of clothing or bed-linen, which may have

been put aside in cupboards or otherwise, until wanted. If once dry, they remain so; and every resident in Pau has often observed, that a saturated towel, will, in a few hours, during rainy weather and in a room without a fire, become perfectly dry; whilst in the most favoured districts of England, in many parts of Italy, and even in the Azores, where the temperature is always more elevated than at Pau, flannel articles of dress, etc., become thoroughly damp, from the free humidity with which the atmosphere is in those places impregnated.

A French gentleman, proprietor of a country-house on the Côteaux of Gelos, exposed in all directions to the weather, informed the author, that in this house, where no fires had been kept at one time for two years, there was not the least appearance of mildew observable on the paper or furniture; and that on opening the windows from time to time, at long intervals, to air the apartments the flies were found alive and active.

Yet although a considerable quantity of rain falls in Pau, compared with London and other localities, still the number of rainy days is much fewer than in many other places. Thus, for instance, 27 inches of rain fall annually in London, and from 40 to 50 inches in Pau; but the number of rainy days is, according to Sir James Clark, 109 at the latter place,* and 178 in London. The rains in Pau and neighbourhood fall in large and sudden quantities, and frequently towards and after the setting of the sun; and the soil is so absorbent, and the natural

* This average is given from observations made in the years 1822-24. It will be seen, from the tables in this work, that the average is higher.

drainage so good, that there are but few days in which the healthy may not pass three or four hours in the open air, and on which even the invalid, well clothed, may not generally take some exercise in the middle of the day.

By reference to Table No. 2, chapter X, it will be seen that the mean temperature of the autumn, winter, and spring seasons, have been taken from thermometric indications observed twice a day, during thirteen consecutive years, from 1843 to 1856, viz., at 9 o'clock A.M. and 3 o'clock P.M.; that for autumn being 56° 4′, for winter, 42° 8′; for spring, 54°. This calculation has been made with the view of showing the invalid the mean state of the temperature for the different seasons, at that period of the twenty-four hours when he is most likely to expose himself to the external air. This medium state of temperature, combined with a remarkable absence of wind at all seasons, supplies that quality of climate where functional repose in excitable temperaments is the object sought for. Indeed, during the ordinary winters, invalids, with chest affections, may be seen sitting in the open air during the months of November, December, and January, without injury, if care be taken to avoid going suddenly from the hot sun into the cold shade.

The west wind, which brings rain, does not bring cold with it. Indeed, it has been universally remarked, not only by medical men, but confirmed by the consoling experience of persons suffering from coughs depending on tuberculous or acute bronchitic irritation, that what, in common parlance, is called bad weather, viz., cloudy and rainy weather, alleviates their symptoms. This is

clearly enough visible in the diminished pulse, lessened cough, and increased feelings of *bien-être*. The best wind is the south-west, as the same good qualities of weather are found as in the west, without the inconvenience of rain.

The discrepancy between the indications of the udometer and hygrometer, already remarked upon, as well as the anomaly observed in the barometer during certain months of the year, rising before wet weather, and sinking on the approach of dry weather, may, perhaps, be traceable to the changes which suddenly take place in the winds, these being frequently in the morning from the east, in the forenoon and middle of the day from the south, and veering to the south-west and west towards its close. When the wind has been for a short time in the south-east and south, the air becomes charged with electric matter to a greater or less extent, but always to a degree appreciable by persons of a sanguine temperament. The wind, in this state of things, changing to the west, which is the invariable result, brings on its soft and soothing wings volumes of Atlantic vapour, to be expended in the absorption of the excess of atmospheric electricity; thus not merely robbing the air of its exciting and irritating properties, but lulling, in a corresponding degree, the human system at the same time. In addition to this, the soil of Pau, being gravelly, instantly absorbs any amount of moisture. And the valley of the Gave, with a similar soil, extending so many miles, has a fall in all directions to the river; so that there is no accumulation of standing water to be reabsorbed into the atmosphere.

Sir James Clark makes the following general observa-

tions on the climate of Pau*:—'The annual quantity of rain has not been measured at Pau. The number of days in which rain falls is 109, nearly the same as at Rome, and about 70 less than in London. The west wind blowing directly from the Atlantic, is accompanied with rain; the wind from the north-west and from this point to the north-east, brings dry cold weather. The south and south-west winds are warm and oppressive. The westerly or Atlantic winds are the most prevalent; the north wind blows feebly and is not frequent; the oppressive southerly winds are of rare occurrence, and seldom continue longer than twenty-four hours. Indeed, Pau appears almost exempt from the oppressive southerly winds on the one hand, and the cold north-west winds on the other, both of which prevail over this part of France generally.

'The easterly winds are next in frequency to the west, with which they usually alternate; and it is observed, that according as the one or other wind prevails, the weather is rainy or dry and pleasant.

'Rain seldom continues above two days† at a time, and is usually followed, in a few hours, by warm sunshine, while the ground, from the absorbent nature of the soil, dries rapidly. The atmosphere, generally speaking, is also remarkably free from moisture, as indicated by the hygrometer. In October some snow generally falls on the centre chain of the Pyrenees; and at Pau this fall is marked by a sudden change of temperature, the weather becoming rainy and chilly. In November, the weather

* Clark, *On Climate*, 190.

† It will be seen from the meteorological tables that this is too favourable an account as to the rain.

clears up, and becomes milder. December and January are cold and dry; frost and slight snow-showers then occur, but the snow does not lie upon the ground. The sun is bright and warm, and from twelve to three o'clock an invalid may generally take exercise. February is milder, but towards the end of this month the spring rains fall, and the weather is then chilly and disagreeable. March is mild but variable, though there are no cutting winds. In spring, westerly winds which are soft and mild, accompanied with rain, alternate with dry easterly winds also of a mild character. Hence it is that the vernal exacerbation of inflammatory affections of the stomach and lungs so commonly observed in other climates, is little felt by invalids at Pau.

'There are several circumstances in the climate of Pau which render it a favourable residence for a certain class of invalids. The atmosphere, when it does not rain, is dry, and the weather fine, and there are neither fogs nor piercing winds. The characteristic quality of the climate, however, is the comparative mildness of the spring and exemption from cold winds.

'The mildness of spring and its little liability to winds, render this place favourable in chronic affections of the larynx, trachea, and bronchi. In gastritic dyspepsia, Dr. Playfair has found it beneficial, and he has seen it useful in a few cases of asthma. With delicate children also he found the climate agree well, especially when they were removed to the mountains during the summer.'

Mr. Murray,* although no medical authority, thus

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* *A Summer in the Pyrenees*, by the Honourable JAMES ERSKINE MURRAY, vol. ii. p. 131.

conveys his notions of the climate of Pau, from what he experienced:—'The climate of Pau is, perhaps, the most genial and best suited to invalids of any other spot in France. There are there no sudden transitions from heat to cold as at Nice or Montpellier; nor piercing cold winters as at Tours.'

Pau, from its local position is so sheltered, and indeed, from some atmospheric peculiarities of the climate, generally so free from the presence of wind, that scarcely at any season of the year is the function of any organ, however delicate, liable to be disturbed, provided proper attention be paid to clothing, and exposure to the sun's rays be avoided. Whatever quantity of rain may fall, or whatever cold may occur, there is no piercing wind as in Britain, or even in Nice, Florence, or Rome, to force its severity into the *penetralia* of weakened frames; nor externally does the atmosphere communicate to the feelings the sensation of *rawness*.

CHAPTER IX.

DESCRIPTION OF THE WINDS OF PROVENCE AND LANGUEDOC.— REASON WHY THESE WINDS ARE NEVER EXPERIENCED AT PAU. — ADVANTAGE TO THE CLIMATE OF PAU FROM THE TOWN BEING SITUATED TO THE NORTH OF THE MOUNTAINS.— FREEDOM FROM THE SIROCCO AND COLD NORTH WINDS.—DR. JAMES JOHNSON'S VIEWS.—MRS. ELLIS ON THE STATE OF THE ATMOSPHERE OF PAU.— STATE OF VEGETATION.— ECCENTRICITIES OF CLIMATE IN DIFFERENT AGES AND IN DIFFERENT PARTS OF THE EARTH. — INFLUENCE OF THE AMELIORATION OF CLIMATE ON THE DURATION OF HUMAN LIFE.

PERSONS practically unacquainted with the topography of Bearn, and who are in the habit of confounding the south-east and the south-west of France under the general denomination of *south*, cannot conceive, *a priori*, how it is that the Circius, the Bize, the Mistral, and the east winds which inflict such cruel ravages on certain parts of Provence and of Languedoc, do not extend their influence to Pau, which is in the same latitude. Yet, a study of the countries, where those different winds arise, and of their geographic direction, on the map of France, demonstrate clearly that it is physically impossible that they should be felt at Pau. Thus, as respects the west north-west wind, the *Circius* of the ancients, renowned during countless ages for its violence, *'taking its origin in the valley which separates the Pyrenees from the chain of Castres and and St. Pons, moderated in the Haut Languedoc; it

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* *Essai sur Montpellier*, par EUGÈNE THOMAS, p. 25.

increases progressively as it advances in the Bas Languedoc, and blows with extreme force at Narbonne, at Beziers, and at Agde, where it goes ultimately to expend itself in the Mediterranean.'

The north wind, or *Bise*, passes by the mountains of the Haut Loire, of the Lozère, and the Cevennes and produces a most biting cold when the mountains are covered with snow. In the spring and summer it is dry and scorching, and injurious to vegetation, and is then known by the name of Tramontana.*

The north-west wind, or *Mistral*, has nearly the same origin as Circius; but as its direction is entirely opposite to that of Pau, and as it passes usually at a distance of seventy to eighty leagues from that town, it is easy to understand how completely exempt it must be from this scourge.

The east winds and their varieties, known in Provence and in Languedoc under the names of Aoura Roussa, Marin, Marin Blanc, etc., which are so disastrous in those countries, are scarcely felt at Pau. We attribute their mildness to the circumstance, that after having left the Mediterranean at Narbonne, they pass over a vast extent of dry and sheltered country, and thus lose the pernicious humidity with which they became impregnated in traversing the Gulf of Lyons and the marches of the Aigues Mortes.

Pau, although situated so near to the Pyrenees, has the advantage over Rome of being to the north of the mountains; a circumstance, which tempers, on one side, the violence of the cold winds of the north, and, on the

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* *Essai sur la Climat de Montpellier*, par T. POITEVIN.

other, the oppressive and enervating influence of the south wind, or *Sirocco,* since it passes over peaks covered with snow.

At Rome, and in the other towns of Italy, which are to the south of the Apennines, the Sirocco and the Tramontana rage frequently with extreme severity. The first, the Sirocco, seems to suspend, extinguish or paralyse the nervous force of the body, and the intellectual energy of the mind, which both become prostrated under the influence of the enervating vapours, borne on the currents of air, which have traversed burning sands and humid seas. The second, the Tramontana, rushes down from the Apennines and seizes the vital heat from all the pores, cools down the surface of the body, sends back with violence the circulation on the internal organs, and injuriously affects the lungs or some other part of the machine which it finds out to be the most feeble.*

Mrs. Ellis,† in speaking of the atmosphere, remarks: 'At the foot of a woody range of high ground, forming the promenade above described, (the Park,) runs the broad shallow river Gave, with a perpetual low murmur that lulls the senses to repose. It is, in fact, the only sound we hear; for there is so little wind in this climate that not a leaf is seen to move; and we, therefore, distinguish at a greater distance the toll of the matin and the vesper bell in the neighbouring villages, and the tinkling sounds which tell when the flocks are led to and from the fields. There appears at first to be a

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* *Change of Air*, by Dr. James Johnson, p. 288.

† *Summer and Winter in the Pyrenees*, p. 35.

sort of mystery in this universal stillness. It seems like a pause in the breath of nature, a suspension of the general throb of life; and we almost feel as if it must be followed by that shout of joy which the language of poetry has so often described, as the grateful response of nature for the blessings of light and life; and never surely could this response be offered more appropriately than from such a scene as this rich and fertile land presents.'

Again, on the same subject, says Sir James Clark:* 'Calmness, for example, is a striking characteristic of the climate, high winds being of rare occurrence and of short duration.'

The effects of the genial south wind, which, for an average of years, blows during the first two winter months, are very sensibly visible on the vegetation at Pau. On the Place Royale, an esplanade in the centre of the town, which is freely exposed to the south, there is a sycamore-tree, which may be said to be always in leaf, the new ones, in the middle of December, pushing off the old, and only twice during eighteen years does the author recollect that the winter and spring were sufficiently severe to nip this premature vegetation.

It is not wished to convey, by the specimen just quoted, the idea that germination has begun to show itself at this early period of the year. With the exception of fruit-trees occasionally showing symptoms of life, under the influence of solar heat and a southern wind, this *avant-courier de printemps,* one of the advanced sentinels of the Place Royale, has its undivided glories to itself. It is not until the middle and end of March

* Clark, *On the Sanative Influence of Climate,* p. 189.

that the buds generally start into leaf, while the oaks put forth their leaves at least a month earlier than in England. Mrs. Ellis,* when speaking of this subject, says, that 'from the beginning to the twenty-fifth of April, a great and rapid change comes over vegetation; the orchards suddenly become white with blossoms, lilacs burst forth into full bloom, and all things assume the same aspect they do with us about the end of May or middle of June." On the twenty-first of March of this year, 1856, however, the poplars and willows, and on the first of April, the lilacs, elms, beeches, and oaks were in leaf.

While thus generally describing Pau, and its prevailing winds, and their influence upon vegetation, we shall give a few instances of the relative effects of the severe winter of 1838 upon Pau and some other places.

The cold which, in 1838, raged with such unusual severity in the different countries of Europe, was scarcely felt at Pau. It cannot be forgotten that when the temperature of Pau recalled the fine climate of Italy, at Orthez (only twenty-five miles distant to the west) a thick fall of snow covered the ground to Bayonne, (a further distance of forty miles). The cold at this time at St. Petersburg was 54° below the freezing point of Fahrenheit. At London, the cold, during the fire at the Royal Exchange, was so intense, that the water sent by the pumps against the burning buildings fell in icicles on the ground. At Brussels the cold was 5° of Fahrenheit during the night of the sixteenth and seventeenth of January. At Geneva, —4° or 36° below

* *Summer and Winter in the Pyrenees*, p. 189.

freezing, the greatest cold that had ever been there felt. At Paris 6°, where a soldier was frozen to death on duty in his sentry-box. At Rouen, the thermometer fell to 7°; at Caen, 2°; at Lyons, 2°; at Grenoble, 9°; at Toulouse, 2°. At Bordeaux, from the tenth to the twentieth of January, the thermometer had fallen gradually to 6°.

It may be stated as a general rule, almost without exception, that if at Pau there be weather more than usually severe, we in due time read in the journals the details of weather in England, and even in more southerly latitudes than Pau, far exceeding in severity and duration any met with here. While this is almost invariably true, it does not equally happen that severe weather elsewhere is countenanced by a corresponding deranged state of the weather in Pau. This is not merely the opinion of the author; but is the result of the intelligent experience of the oldest British residents in the place.

Any one who paid attention to the atmospheric changes during the winter of 1841-42, throughout Europe, must have been struck with their eccentric operation. While in the south of Europe the weather had been severe, for instance, at Barcelona, where, in the month of February, water used on the stage for melodramatic purposes was found to be frozen during the performances; in the north, for instance at Stockholm and St. Petersburg, the weather had been unusually mild. During the same month at Pau, the sun's rays were so powerful as to be oppressive, with vegetation threatening to burst into leaf. Indeed from the thirtieth of January to the eighth of March, there had been weather something

more than genial, with neither wind nor rain, if we except three occasions, when some rain fell during the night; while, at the same time, in England there had been such frequent storms of wind and rain, as to create fears of a failure of the wheat-harvest in some districts. At Dublin there was a heavy fall of snow in the middle of February; and at Geneva the weather had been most unusually severe.

These eccentricities of weather present themselves from time to time, as they have in all ages done, since such matters have been recorded. For instance, during the winter, 1843, in the month of January, the cold was so intense at Rome, that it became necessary to shut the shops; the weather also was very severe at Nice and less so at Pau; whereas in England, Ireland and Scotland, the weather was singularly mild. The winter began earlier in the south of Europe, but advanced with slow and sure steps towards the north; and, later, the inhabitants had to pay dearly for the beautiful and balmy days they had so prematurely enjoyed.

Still the inclemency of climates, and the eccentricity of atmospheric phenomena, were more common in ages long rolled away, before culture had ameliorated the physical constitution of the earth. This cause doubtless, joined to some inappreciable changes in the action of the heavenly bodies, had gradually exerted a great influence on the climate of Europe. We can form a tolerably accurate judgment on this subject, by comparing that which we know of the vegetable productions of Italy, and the history of the seasons in that country, at the present time, with their state in the palmy days of the Roman power. In Ovid's time the Black Sea remained

sometimes frozen for many years following. Pliny, the younger, speaks of the impossibility which he experienced of rearing the olive and myrtle in the open air, in countries where they now flourish luxuriantly. The works of the poets are full of descriptions of the frozen Tiber, and of the rigorous winters of Italy, whereas now, however cold it may be, there is rarely either ice or snow in the rivers and plains of that privileged land. And as to France, Diodorus Siculus recounts, as a thing of ordinary occurrence, that the rivers were frozen to such a depth during the winter, that cavalry and infantry, carriages and heavy equipages of war, passed over the ice without any risk.

It is known that Arago has propounded several serious arguments, to prove that the mean temperature of summer is, at present, lower in France than it was two or three hundred years ago. He bases his arguments on the fact that the vintages were earlier than at present, and that the grape ripened at a greater height above the level of the sea than it can now be made to do. But whatever changes may have taken place in the temperature of the summers, it is certain that the winters have become less rigorous, and that a more happy equilibrium has been established between the different seasons, from which has resulted a condition of the atmosphere more favorable to health, and to the longevity of the human race.

The mean duration of human life has, in fact, considerably increased since the time of the Roman domination in Europe. The tables of statistics, collected by the secretary and minister of Alexander Severus, which were based on registers containing the age, sex, diseases, and deaths of citizens, from the time of Servius Tullius, to

that of Justinian, that is, during a period of ten centuries, fixed the duration of life of the general population, without reckoning slaves, at *thirty years*. In England, at the present day, from statistic returns laid before Parliament, the mean of life among the rich is *fifty years;* among the mass of the population, *forty-five years*.*

The average duration of human life is less throughout the whole of France than in England: still it is sufficiently high to show the favorable changes which have taken place in the course of ages, in the causes which affect life, and the well being of man. Among the causes for this improvement, it is but just to assign to the ameliorations of climate their legitimate share.

A propos to the eccentricities of climate, it may not be without interest to the reader, if we cite some examples of accidental crises which have, from time to time, appeared in Europe during past ages. These *souvenirs* are not only instructive in themselves, but they also inspire us with a grateful confidence, that such scourges, if they visit us rarely, do so with much less intensity. In the year 860, the Adriatic and the Rhone were frozen, which supposes a cold of 45° below the freezing point of Fahrenheit. In 1133, the Po was frozen from Cremona to the sea; the Rhone was traversed on foot, and wine in wood in the cellars became solid. The temperature must have been about 44° below the freezing point. In 1216, the Po and the Rhone were frozen to a great depth, at a temperature of 44° below freezing. In 1274, the Po and the Rhone were frozen, and heavy *fourgons* passed the Adriatic in front of Venice. In 1236, the Danube

* HAWKINS' *Statistics.*

remained for a long time frozen throughout its whole extent. In 1290, heavy waggons traversed the Rhine on the ice before Breysach. In 1301, the Rhone, and all the rivers in France, were frozen. In 1302, the Rhone was frozen. In 1336, all the rivers of Italy, and of Provence, were frozen; temperature, 44° below freezing. In 1468, in Flanders the soldiers cut their rations of wine with hatchets. On the 25th and 26th of December, 1463, the port of Genoa was frozen over. In 1517, the port of Marseilles was entirely frozen over. In 1544, in France, the wine in barrels was cut with a hatchet. From the end of November 1570, to the end of February 1571, the winter was so severe, that all the rivers in France, even those of Provence and Languedoc, were frozen to the extent of supporting heavily laden waggons. In 1594, the sea was frozen at Marseilles and at Venice—the cold being at 45° below the freezing point of Fahrenheit. In 1709, the Adriatic and Mediterranean were frozen at Genoa, Marseilles, and Cette.*

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* *Annuaire du Bureau des Longitudes*, 1834.

CHAPTER X.

METEOROLOGICAL TABLES OF THE CLIMATE OF PAU FOR A SERIES OF YEARS.

TABLE I. OF THE MEAN TEMPERATURE OF EACH MONTH OF THIRTEEN SUCCESSIVE SEASONS, EACH SEASON CONSISTING OF NINE MONTHS FROM 1843 TO 1856, TAKEN TWICE A DAY.—II. OF THE MEAN TEMPERATURE OF THE SEASONS OF AUTUMN, WINTER, AND SPRING, DURING THIRTEEN YEARS, FROM 1843 TO 1856, TAKEN TWICE A DAY.—III. NUMBER OF DAYS IN WHICH SOME RAIN FELL DURING EACH MONTH OF EACH YEAR OF THE FIVE YEARS, 1837-38-39-40-41.—IV. NUMBER OF DAYS IN WHICH SOME SNOW FELL, AND IN WHICH THERE WAS SOME FROST, IN EACH MONTH OF EACH YEAR, 1837-38-39-40-41.—V., VI., VII., STATE OF THE WINDS.—VIII. AVERAGE NUMBER OF DAYS IN EACH MONTH, FROM 1843 TO 1856 IN WHICH SOME RAIN OR SNOW FELL.—TABULAR STATEMENT OF WEATHER.

THE following meteorological tables give a tolerably accurate idea of the climate of Pau, as regards its temperature, direction of the winds, number of rainy and snowy days, etc., for a series of years. These tables may be depended on; as the earlier ones in point of date, are founded on observations furnished by M. Mermet, formerly professor of natural philosophy at the Royal College of Pau; and the latter ones have been obtained from private and reliable sources.

TABLE I.

Of the Mean Temperature of each Month of Thirteen Successive Seasons, each Season consisting of Nine Months, from 1843 to 1856, taken twice a day—viz. at 9 o'clock, A.M., and 3 o'clock, P.M., the Invalids' day.

Months.	1843-44.		1844-45.		1845-46.		1846-47.		1847-48.		1848-49.		1849-50.		1850-51.		1851-52.		1852-53.		1853-54.		1854-55.		1855-56.	
	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.
September	63.5	69.2	63.3	69.9	64.3	72.1	62.4	69.8	57 9	65.6	62.1	69.8	60.6	68.0	60.3	67.6	57.3	64.9	59.7	66.8	59.0	63.9	66.6	76.1	61.8	69.0
October . .	55.3	62.4	53.7	59.9	54.4	62.1	50.9	57.2	52.0	61.0	53.4	60.0	55.1	62.4	50.2	55.8	51.7	59.0	51.6	61.7	52.2	58.8	58.1	61.6	54.0	
November	43.6	50.1	43.0	52.9	47.8	55.4	45.1	55.2	44.5	52.1	41.4	47.6	44.5	52.4	45.3	51.7	37.3	41.6	53.8	58.0	42.8	50.9	43.5	49.0	43.0	50.5
December	33.8	42.0	35.4	43.0	40.9	46.5	31.9	37.2	38.5	45.3	43.5	53.8	38.5	43.4	38.2	46.8	33.4	42.8	45.4	56.5	34.2	41.8	41.0	45.3	38.3	45.8
January .	41.1	45.7	39.6	45.4	42.2	49.4	37.0	48.3	30.3	36.3	42.7	50.0	39.0	44.1	39.4	48.1	42.8	48.6	42.9	50.3	38.8	49.0	33.6	41.4	44.2	50.5
February.	41.1	44.4	34.7	41.2	42.4	51.2	37.9	44.7	40.5	47.8	41.1	51.8	43.6	52.1	36.7	46.0	35.4	40.9	37.0	42.7	36.1	43.1	44.4	51.9	41.5	53.3
March . . .	45.3	51.5	43.7	50,0	47.5	55.5	40.9	50.6	41.5	48.7	43.3	53.0	43.6	53.6	43.9	50.0	44.0	53.8	41.7	48.1	43.1	53.6	45.8	50.3		
April . . .	55.4	62.6	52.8	57.2	52.7	58.2	46.8	51.4	50.1	56.2	48.2	53.2	52.8	58.9	54.0	57.4	52.1	58.2	55.7	59.0	54.5	62.6	52.1	58.4		
May	55.4	61.3	53.0	56.9	59.0	64.7	62.7	70.2	59.0	64.8	60.1	66.3	55.4	60.7	53.8	62.2	57.4	61.9	56.0	60.2	56.5	60.8	53.7	52.2		

TABLE II.

Of the Mean Temperature of the Seasons of Autumn, Winter, and Spring, during Thirteen Years, from 1843 to 1856, taken twice a day—viz.: at 9 o'clock, A.M., and 3 o'clock, P.M., the Invalids' day.

SEASONS.	1843-44.	1844-45.	1845-46.	1846-47.	1847-48.	1848-49.	1849-50.	1850-51.	1851-52.	1852-53.	1853-54.	1854-55.	1855-56.	Mean for 13 yrs.
Sept. Oct. Nov.	57·3	57·1	59·3	56·2	55·5	55·6	57·1	55·2	51·8	58·9	54·6	58·3	56·4	56·4
Dec. Jan. Feb.	41·3	39·9	45·4	59·5	39·6	47·1	43·4	42·5	40·6	45·8	40·5	42·8	45·6	42·8
														Mean for 12 yrs.
Mar. April May	55·2	52·2	56·2	53·7	53·3	54·0	54·1	53·6	54·5	53·4	55·1	53·0		54·

TABLE III.

Number of Days in which some Rain fell during each Month of each Year of the Five Years 1837-38-39-40-41.

MONTHS.	1837.	1838.	1839.	1840.	1841.
	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.
January	6	8	13	11	14
February . . .	11	12	11	10	7
March.	10	17	12	4	13
April	19	17	10	12	11
May	19	20	8	18	8
June	7	13	5	13	8
July	12	4	6	4	6
August	8	6	3	7	3
September . . .	12	7	11	3	6
October	7	7	12	11	17
November . . .	14	22	15	14	11
December . . .	4	8	10	9	15
Total . . .	129	141	116	116	119

If we add to these results for five years, the number of rainy days in 1822-24, which amounted, according to Sir James Clark, to 109, we have an average for seven years of 119 days. The average quantity of rain that falls annually may be stated approximately at 43 inches. Thus, in the unusually wet year of 1838, when there were 141 days of rain, 44¾ inches were shown to have fallen. In 1839, there were 116 days of rain, and the udometer showed 42 inches.*

* Of late years, certainly, the average quantity of rain which has fallen has been considerably more than this.

TABLE IV.

Number of Days in which some Snow fell, and in which there was some Frost, in each Month of each Year, 1837-38-39-40-41.

Months.	1837.		1838.		1839.		1840.		1841.		Total.	
	No. of Days.		No. of Days.		No. of Days.		No. of Days.		No. of Days.		No. of Days.	
	Snow.	Frost.	Snow.	Frost.	Snow.	Frost.	Snow.	Frost.	Snow.	Frost.	Snow.	Frost.
January .	4	12	3	13	4	10	.	4	5	2	16	41
February .	2	4	2	3	1	2	1	6	1	.	7	15
March . .	11	10	1	1	1	1	3	9	.	.	16	21
April . .	7	5	3	.	.	.	.	.	.	.	10	5
October .	.	.	1	.	.	.	.	.	.	.	1	.
November .	.	5	.	1	.	5	.	.	.	.	.	11
December .	.	6	.	3	.	4	1	4	4	1	5	18
Total .	24	42	10	21	6	22	5	23	10	3	55	111

TABLE V.

State of the Winds.

1837.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Months.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.
January . .	4	.	.	2	14	1	3	7
February . .	2	1	.	.	5	3	7	10
March . . .	2	2	4	1	2	1	6	13
April . . .	5	2	2	.	.	1	2	18
May . . .	4	4	3	.	.	2	4	14
June . . .	8	3	3	.	3	.	6	7
July . . .	8	3	3	1	3	1	5	7
August . .	9	2	5	2	.	3	5	5
September .	6	4	5	2	1	1	2	9
October . .	6	3	5	3	4	.	3	7
November .	5	.	2	1	2	8	9	3
December .	4	.	7	9	2	.	5	4
Total .	63	24	39	21	36	21	57	104

TABLE VI.

State of the Winds.

1838.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Months.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.
January . .	2	2	2	5	7	3	3	7
February . .	6	1	.	1	5	4	3	8
March . . .	8	.	3	2	6	2	2	8
April . . .	7	.	.	2	1	.	2	18
May . . .	3	2	1	1	2	2	3	17
June . . .	4	5	1	4	2	1	.	13
July . . .	5	2	2	3	2	1	3	13
August . . .	3	1	4	3	3	1	5	11
September .	4	.	1	1	3	2	1	18
October . .	1	2	.	6	1	3	1	17
November .	6	5	2	1	2	.	1	13
December .	2	.	.	3	15	1	1	9
Total .	51	20	16	32	49	20	25	152

TABLE VII.

State of the Winds.

1839.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Months.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.	No. of Days.
January . .	4	.	1	.	2	.	15	9
February . .	2	.	1	2	3	2	6	12
March . . .	.	2	6	2	2	1	11	7
April . . .	5	3	2	1	2	1	9	7
May	5	5	3	1	2	1	5	9
June . . .	3	6	5	2	6	.	5	3
July	6	4	5	2	1	1	3	9
August . .	4	2	6	3	5	2	4	5
September .	3	.	2	1	5	6	7	6
October . .	2	1	3	.	4	5	9	7
November .	5	3	2	1	3	2	5	9
December .	2	2	1	4	6	5	5	6
Total . .	41	28	37	19	48	26	84	82

Tables III., IV., V., VI., and VII., were prepared from materials furnished by M. Mermet, and appeared in the first edition of this work with the appended remarks. We have considered it desirable to continue them in the present edition, and to give, also, tables of the succeeding years up to the present time, although they are not so favorable, meteorologically speaking, to the character of the climate as to the number of rainy and snowy days, as those already given.

TABLE VIII.

Average Number of Days in each Month, from 1843 to 1856, in which some Rain or Snow fell. A Shower of more than twenty minutes is reckoned.

Months.	Days of Rain or Snow.	Months.	Days of Rain or Snow.
January	13d. 7h.	July	12d. 0h.
February	11 12	August	12 8
March	13 6	September	12 0
April	18 0	October	16 12
May	18 11	November	12 5
June	16 7	December	11 7
	90d. 19h.		76 8
		Brought forward .	90 19
		Average number of rainy and snowy days per year .	167d. 3h.

In explanation of this table, it is but fair to mention that a considerable proportion of the amount of those put down as rainy days is made up of rainy nights, a great deal of rain usually falling after the setting of the sun, and in consequence inconveniencing the invalid but little during his part of the twenty-four hours. From the drying qualities of the atmosphere, and the absorbing nature of the soil, the surface of the earth with a few hours of fair weather becomes dry.

But in order that the reader may have a clearer idea in detail of the climate of Pau, we now subjoin the daily state of the weather from the 1st of October, 1855, to the 1st of April of this year, 1856, which is the invalids' portion of the year. These six months have been a favourable specimen of the climate.

OCTOBER, 1855.

Days.	9 o'cl. A.M.	3 o'cl. P.M.	State of Weather.
1	58	64	Overcast.
2	58	66½	Fine, clear.
3	60½	71½	Fine, clear.
4	60	64½	Overcast, clear, 6 hours' rain from 3 to 9 P.M.
5	58	62½	Fog, rain, fine, hard rain after 7 P.M.
6	59	65½	Fine, clear, cloudy, fine.
7	55	62	Rain till 10, cloudy, fine.
8	63	67	Fine, cloudy.
9	58	51½	Cloudy, hard rain from 11 A.M.
10	53	61	Overcast, fine.
11	53	60	Fine, clear.
12	50½	62½	Fine, clear.
13	57	71½	Fine, clear.
14	60	68	Rain and thunder from 7 to 11, and hard rain after 8.
15	52½	57½	Rain and wind till 11, cloudy, fine, hard rain after 7.
16	49	61½	Fine, clear.
17	51	59	Cloudy, rain after 5 P.M.
18	51	60	Fine, clear, rain after 5 P.M.
19	54	—	Rain from 10 till 12, and afternoon.
20	53	59	Fog at 8, fine.
21	52½	63	Fine.
22	56½	63	Cloudy, fine.
23	58	61½	Fine, showers from 1 to 4, and at night.
24	58½	—	Cloudy, hard showers after 1.
25	55½	—	Cloudy.
26	50½	60½	Fine, clear, rain all night.
27	44	—	Rain all day and night.
28	43	44	Rain all day and night.
29	45½	47	Wind and hard showers, rain day and night.
30	46½	—	Showers all day and night.
31	49½	—	Slight showers, hard showers all day and night.

NOVEMBER, 1855.

Days.	9 o'cl. A.M.	3 o'cl. P.M.	State of Weather.
1	49	—	Rain and wind till 12, and after 1, and at night.
2	46	—	Cloudy, showers after 3, wind and rain at night.
3	45	—	Cloudy, fine, wind.
4	47½	45½	Cloudy, showers from 9 to 2 and at night.
5	44	—	Cloudy.
6	40	—	Fine, clear.
7	37½	—	Fine, clear.
8	41	55	Cloudy, rain at night.
9	48	57	Overcast, fine.
10	45	55	Fine.
11	47	52	Mist, showers after 2.
12	50½	53	Rain till 9 A.M., mist.
13	47½	50	Mist, slight rain at 10 A.M.
14	48½	54	Fine, clear.
15	40	52	Mist, fine, clear.
16	38½	54	Fine, clear.
17	40½	56	Fine, clear.
18	45½	50	Overcast, fine, cloudy.
19	43	51	Fog, fine, cloudy.
20	43½	48	Mist, fine, cloudy.
21	38½	54	Fine, clear, cloudy.
22	43½	50	Cloudy, fine, slight showers.
23	40½	50½	Fine, clear.
24	40	48	Fine.
25	41	45	Fog, overcast.
26	42½	45	Cloudy, 2 slight showers.
27	39½	50	Fine, clear and cloudy.
28	42	48	Overcast, showers after 3.
29	42	45	Cloudy.
30	35	46	Fine, clear.

DECEMBER, 1855.

Days.	9 o'cl. A.M.	3 o'cl. P.M.	State of Weather.
1	34	35	Fog at 8, fine, cloudy.
2	38	44	Fine, cloudy.
3	35	37	Cloudy, hailstones after 2.
4	29½	35	Fine.
5	39	47	Mist, cloudy, slight earthquake at 20 m. to 7 P.M.
6	45½	45	Wind and showers all day.
7	40	43	Fine, showers after 2.
8	41	43	Showers till 3 and after 6.
9	39	40	Cloudy.
10	33½	36	Cloudy.
11	30½	33	Overcast.
12	25	31	Fine, clear.
13	23	32	Overcast, clear.
14	23	32	Fine.
15	33½	39	Cloudy and fine.
16	35½	50	Fine, clear.
17	40½	55½	Fine, showers after 7 P.M.
18	48½	53	Cloudy, overcast.
19	45½	48	Cloudy.
20	42	45	Cloudy.
21	43½	51	Rain at 9 A.M., fine, rain at night.
22	45	50	Showers all day.
23	43	55½	Overcast.
24	47	51	Mist, rain after 2 P.M. to 9.
25	41	56	Overcast, hard hailstorm at 10 P.M.
26	39½	57	Fine, cloudy.
27	43½	52½	Overcast, fine.
28	43	57½	Overcast.
29	42	57	Fine, clear.
30	43	51	Cloudy.
31	36	49	Fog 8 A.M., fine.

JANUARY, 1856.

Days.	9 o'cl. A.M.	3 o'cl. P.M.	State of Weather.
1	42½	49	Cloudy, rain at night.
2	39	50	Cloudy, rain at night.
3	43½	52	Overcast, fine.
4	40½	51	Overcast, clear.
5	47	55	Cloudy, showers at 10 A.M. and at night.
6	44	54	Fine, cloudy.
7	45	53	Slight shower at 10 A.M., cloudy and fine.
8	40½	54	Fine, showers after 4.
9	40½	50	Cloudy.
10	47½	50	Overcast, two slight showers.
11	46½	51	Showers till 12.
12	38	35½	Small rain all day, snow at 4 P.M.
13	32	31½	Cloudy.
14	31	42	Cloudy, showers at 10 and after 8 P.M.
15	44	46	Cloudy.
16	37	45	Fine, cloudy.
17	41½	52	Fine, showers after 1 P.M.
18	39½	52	Fine, rain at night.
19	46	54	Fine, rain at night.
20	48½	65	Cloudy, rain at 10 and at night.
21	52	61	Cloudy, showers at 11.
22	49½	54	Rain, showers all day.
23	58½	56½	Slight showers till 3, fine, rain at night.
24	59	60	Cloudy, showers at 11 and after 5, wind.
25	49	51	Rain almost all day and night.
26	45	46½	Wind and hard showers all day.
27	44½	48	Small rain till 10, and from 12 all day.
28	54½	49	Wind and hard showers till 3.
29	39½	55	Fine, cloudy.
30	49	50	Rain till 11, showers.
31	37½	45	Overcast, fine.

FEBRUARY, 1856.

Days.	9 o'cl. A.M.	3 o'cl. P.M.	State of Weather.
1	32½	48	Fine, clear.
2	35½	50	Fine.
3	40	53	Fine.
4	42½	53	Fine, hard showers at half-past 3 P.M.
5	42½	51	Fog, fine.
6	39	58	Fine, clear.
7	44½	66	Fine, clear.
8	45	68½	Fine, clear.
9	47½	69	Fine, clear, Aerolites fell at Beuste, B. Pyrenees.
10	49	65	Fine.
11	45½	65	Fine, clear.
12	47½	69	Fine, wind.
13	50½	64½	Overcast.
14	48½	60	Cloudy, showers after 3 P.M.
15	47	55	Cloudy, showers after 3 P.M.
16	48	51½	Rain till 10 A.M., cloudy.
17	46½	52½	Two or three showers, rain at night.
18	43½	50½	Fine, clear.
19	43	51	Overcast, fine.
20	41	41	Rain all day.
21	38	40	Showers constant.
22	33	35½	Snowing continually.
23	31	36½	Overcast, fine.
24	31½	44	Fine, clear.
25	35	46	Fine, clear.
26	36	48½	Fine, clear.
27	36½	48½	Fine.
28	42½	50	Mist, cloudy.
29	42	55	Fine, clear.

MARCH, 1856.

Days.	9 o'cl. A.M.	3 o'cl P.M.	State of Weather.
1	40½	55	Fine.
2	39	46½	Fog at 8, fine.
3	40½	43½	Cloudy.
4	42½	49	Cloudy.
5	41½	53	Fine.
6	42½	43	Cloudy.
7	37	49½	Fog, fine.
8	40	55	Fine, clear.
9	48	60	Fine, clear.
10	47	61	Fine, clear.
11	48	55	Fine, two slight showers, cloudy.
12	51	62½	Fine, showers after 2 P.M.
13	49	58½	Overcast, showers after 3.
14	49	55	Small rain till 10 A.M., overcast.
15	53	67½	Fine, clear, cloudy after 2.
16	54	66	Overcast, fine, cloudy.
17	55	64	Cloudy, showers after 5 P.M.
18	55	64	Cloudy, 2 or 3 slight showers before 12, lightning at 8 P.M
19	58	50	Fine, wind and showers after 11 A.M.
20	44½	47	Wind, rain till half-past 3 P.M.
21	45½	55½	Fine, clear.
22	46½	57½	Fine, clear.
23	48½	65½	Fine, clear.
24	61	67	Fine, cloudy.
25	55	60	Overcast, clear, cloudy, wind, rain from 7 to 9 A.M.
26	53	60	Fine.
27	50½	61½	Fine, thunder and hard rain after 4.
28	50½	55	Cloudy.
29	52½	57½	Slight showers at 8 A.M., showers after 12.
30	51	60	Overcast, fine.
31	50½	65	Fine.

On perusing attentively these tables, the reader will perceive how much a statement already made in this work is confirmed by them, viz., that a great deal of rain falls in the evening and during the night, thus leaving very often the hours in the middle of the day fit for exercise by the invalid, and, secondly, how seldom the presence of wind has been recorded, only thirteen times in six months. There is another circumstance that may be remarked, with regard to the rain, that from the absence of wind it falls almost perpendicularly, and persons, from this circumstance, can take exercise in rainy weather with an umbrella, without being drenched as one would be in a windy climate.

P.S. We think it right to avail ourselves of the opportunity afforded, by the correcting of the proof sheets of this work (June 19th, 1856), to say, that although the preceding tabular statement gives a favourable idea of the state of the weather for the six months to which it refers, yet that, during the months of April, May, and part of June, a great deal of rain fell, not only in the neighbourhood of Pau, but all over France, as evidenced by the frightful inundations from the overflowing of some of its greatest rivers. The weather at Pau, although rainy, was rarely cold, and the country did not suffer from inundations.

CHAPTER XI.

ENQUIRIES IN REFERENCE TO HEALTH AS AFFECTING THE NATIVE POPULATION OF PAU AND NEIGHBOURHOOD.—THEIR DISEASES.—COMPARATIVE FREEDOM FROM CRIME.—EFFECT OF CLIMATE ON THE *morale* AND *physique*.—EXEMPTIONS FROM EPIDEMIC DISEASES.—INFLUENZA.—CHOLERA VISITATION OF 1855.—SOME REMARKABLE CIRCUMSTANCES CONNECTED WITH IT.—COMPARATIVE STATISTICS OF MORTALITY.—LONGEVITY.—RESUMÉ OF THE CLIMATE'S ACTION ON THE NATIVE POPULATION IN HEALTH AND IN DISEASE.

A GOOD opportunity is afforded, once a week at Pau, on Monday, the weekly market-day, of observing the *physique* of the Bearnese population, at least of that part within seven or eight miles of it. Every road pours upon the town its tributary streams of peasantry to swell a throng, which renders the principal streets almost impassable. Independently of the picturesque effect produced by the lively and well-assorted colouring of their costume, one cannot but be struck with the decidedly marked appearances of health in both sexes.

We do not see among this crowd the emaciation produced either by griping poverty, constitutional debility, or enervating vices, but a well-balanced tranquillity of manner, and a physical development not exaggerated but compact, which, little interfered with by art, conveys to the mind the impression of what a peasantry ought to be, neither above nor below its position, with health that knows no violent alterations, and a contentment, the fruit of the *mens sana in corpore sano*.

Among the women occasionally may be seen cases of *goître*, but these are chiefly from the marshy district of the Pont Long. They are much less frequent than in the adjoining district of Bigorre, where in some of the lateral valleys leading from Campan to Barrèges, frightful examples of this disfiguring affection constantly force themselves upon the notice of the traveller.

Both men and women in Bearn, although tanned by exposure to the sun's rays, yet shew a clearness and uniformity of complexion with a firmness of fibre that distinctly mark the absence of a lymphatic *diathesis*. The features of the young females are regular and agreeable. They have not the freshness of complexion and luxuriousness of contour, which we see in the women of England; but there is much natural grace, and even the weights which they are accustomed to carry on their heads, produce in them a graceful balance, and give elasticity to their gait. Their complexions and good looks, however, fade much sooner than among the males. It is difficult, after a female peasant has passed thirty years of age, to guess how old she is within fifteen years; but this decay is more apparent than real. The little shade which the handkerchief wrapped round the head affords to the features, is the principal cause. The sun beats upon their unprotected faces with a power desolating to their good looks; for hard-working as the females are, performing much of the out-door work, they are only exempt from the sun's rays when they have completed their diurnal duties.

The amount of work that the labouring females of this country, even to an advanced age, can undergo, is truly surprising; and taking into account the compara-

tively advanced period at which they cease to be prolific, this speaks much in favour of the climate, in first rearing such sound constitutions, and preserving them so long materially uninfluenced by the attacks of time.

Mr. James, already quoted, in speaking of these people, says: 'I should suppose that the climate of Pau was healthy; the people seem strong, and with their brown skins, small black eyes, long dark hair, and the peculiar cap they wear, they put me in mind of the Calmuck Tartars. They are in general short, broad made, and muscular. In almost every other country, we daily see mountains of flesh that look like *tumuli* for entombing the soul; but there is nothing of the kind at Pau. They are sturdy, but not fat; well-fed, but not pampered.'

The observations which have been made, apply of course to that which constitutes the staple of every country, the producing class of labourers. This, indeed, is one from which alone, particularly in a primitive agricultural state of society, any statistic deductions, valuable as a guide in appreciating the influence of climate, can be taken, while it serves as a scale by which to direct our researches in estimating the effects of climate, in its details, upon a higher class more artificially circumstanced, and whose cases are complicated by a difference of temperament arising from national and other causes.

Nor in noticing thus generally the beneficial influence of climate upon the native population, in thus gifting them with naturally well-balanced constitutions, can it be considered out of place, at this stage of the inquiry, to notice its ameliorating effects

upon the peculiar people, the Cagots, who were specimens of the worst and most disorganized consequences, arising out of a highly lymphatic temperament. Whatever may have been the origin of this afflicted class of human beings, though it is certain they were strangers to the privileges of the laws, yet almost all traces of them have disappeared from Bearn, not altogether from the isolating severity of the regulations against them, but as Count Orloff, in his philosophic work on France, says, 'L'influence *d'un climat salutaire,* le temps et l'introduction de linge, qui paraîtrait avoir été ignoré, ont fait progressivement disparaître cette maladie.'

In some districts, however, of the Hautes Pyrénées, not forty miles from Pau, these people are still to be found, so low in the scale of human organization, that, to use the language of the same author:—'Dans ces hommes qu'on voit traîner dans ces campagnes une vie languissante, dans un corps chétif, privé presque en entier de la sensibilité et de l'intelligence de notre espèce, et n'ayant, on pourrait dire, que l'irritabilité de certains végétaux et la faculté locomotive des brutes.'

As in the early days of classic colonization the augurs examined the entrails of animals for a sign as to the success of their undertakings, so, in the present day, we may be assured that the state of health enjoyed by the lower animals ought to be considered as an element in estimating the influence of climate. It will always be found that there is a symmetry of results, up to a certain extent, among them as among human beings. One cannot avoid being struck with the stunted, miserable aspect of cattle, for instance, in certain cold districts in England, and there is a remarkable instance

of the effects of climate upon animals, as well as upon man, in the state in which the traveller finds the herds of buffaloes in the Pontine marshes. The only vestiges of the human race attached to this soil for miles, are the pale, bloodless herdsmen, dotted on the surface of this desolate waste, and the buffaloes they guard, with lean sides, tottering limbs, and staring skins.

If the augurs found in the entrails of the animals examined, marks of disease, they wisely considered that the gods were unpropitious: for the climate that produced visceral disease in them, could scarcely be expected to spare animals of a more refined and tender organization. On inquiry, then, we have found that the domestic animals in the district under consideration are hardy and little visited by disease, while amongst them there is a patience, a tractability, and freedom from vice, which one does not meet with in a more exciting atmosphere.

It is trusted, that it may not be considered ridiculous thus to compare great things with small, but, among the moral and social qualities of the people, we find, coupled with a *juste milieu* state of health, cheerfulness, and habits of reflection, and a freedom from crime unknown in the annals of political statistics.

From statistical data furnished to us from authority, we find that in a population of 436,000 persons, which compose the population of the Basses Pyrénées, the average of persons annually accused of crime recognisable by the Royal Court of Assizes, during eight years, amounted only to sixty-nine, and that the proportion affecting Pau and its neighbourhood was considerably below this amount, and that crimes punishable

with severe penalties are very rare. In fact, the most serious crimes, in the almost unaccountably small number of persons accused, are committed in the Basque country, and in other parts of the department at a distance from Pau, where the properties of the atmosphere are more stimulating, and where, in consequence, the temperament of the inhabitants is more sanguine, and their passions are less under control.

It would be a curious subject of speculation to follow out the idea, as to how far moral and physical maladies, that is, crime and disease, depend on the influence of climate and soil. One thing, however, is certain, that climate not only modifies the appreciable and tangible functions of the body; but that it influences, also, the faculties of the mind. In a sedative atmosphere we find the phlegmatic temperament, and a diminution of nervous and arterial sensibility, manifested by the small susceptibility to impressions, by the slowness of the pulse, and by the subacute character of disease. So much for the physical effects of such a climate. In a moral point of view we remark, under the same circumstances, grave and tranquil manners, sluggish imagination, a tendency to reverie, and a marked absence of violent and irascible passion.

Therefore it is, that the inhabitants of Pau and the neighbourhood are more phlegmatic, and slower in word and action than is usual among the French. They have not the same vivacity, and their gestures are more calm and easy. The circulation of the blood is evidently, with them, less rapid, and more uniform, and consequently the brain is less actively excited by the arteries. In critical times of political agitation, they conduct themselves with great moderation, and are easily governed.

In a more keen, exciting, and elastic atmosphere, we find, in a state of health, the nervo-sanguine temperament, an increased sensibility, a quickened circulation of the blood, and diseases of an acute character, which require energetic and lowering medical treatment. As to the *morale*, under the same circumstances, the imagination is lively, the perception rapid, the passions more impetuous.

These observations are not only true in so far as concerns the natives of climates opposite to each other in their properties and influences, but they apply also to the temperaments and to the nervous and vascular systems of persons, who, strangers to these climates, have been brought under their influence for a continued period. In such a case their mental qualities, as well as physical constitution, experience a modification.

Thus, at Pau, for instance, we have frequently remarked in the case of strangers who have arrived from more exciting climates, in whom the temperament was full of *tone*, and the nervous and vascular system was endowed with much susceptibility, that after a sojourn of two or three years, and sometimes even before this time, the temperament becomes modified, the nervous irritability diminished and the *pulse falls permanently several beats.* An analogous change takes place in the *morale.* Activity gives place to indecision, reverie succeeds to intellectual energy and to habits of persevering exertion; and persons, the subjects of this change, feel heavy and somnolent.

While to an individual of naturally active mind, these sedative qualities of the atmosphere upon mental exertion are frequently an annoyance, and are often vigorously contended against, yet their proximate cause lies at the

root of the benefits derivable from the climate by valetudinarians of a certain class.

Now at Nice, where the qualities of the climate are diametrically opposed to those of Pau, there being there an irritating atmosphere, always charged with electricity, the results on the human frame, in health and in disease, are totally opposite. Thus, many persons, of a nervo-sanguine temperament, are obliged to adopt a strict regimen, and to diminish the tone of their different organs by artificial means, such as abstinence from meat and wine, and by the use of cooling beverages. On the contrary, persons of a lymphatic temperament, who are not easily excited, and whose circulation is languid, remark that their vital system acquires tone, their nervous and circulating apparatus more energy; and a sensation of *bien-être* replaces the *malaise*, or even the actual indisposition under which they may be suffering, and which took its origin in languor of the animal functions.

As a result of this non-irritating state of the atmosphere, it may be stated, as a fact, with regard to the native population, that the rate of their pulse is permanently less than the average compared, *cæteris paribus*, with that of persons from more exciting and bracing climes, and what it wants in velocity it gains in smoothness and softness. Their bodily functions, therefore, in health, seem to be carried on with a great absence of active irritation, a consequence, no doubt, of their modified pulse. This temperament, it will be observed by the medical reader, is one little favourable to the approach of active membranous and glandular disease, to which persons, natives of more exciting climes, are exposed.

As to the diseases to which the *native* population is subject, and the course they run, we have been anxious to obtain information from other sources than our own limited opportunities of judging of this matter. With this view, we have conversed with the most eminent of the French practitioners, and have had the advantage of procuring results from the registers of the general hospital at Pau, as well as from extensive private practice; and the result of the information, written and oral, is, that—1. There is not in Pau any malady which deserves the rank of a predominant one. 2. That Pau itself is exempt from endemic and epidemic maladies of all sorts; although at some distance to the north-east, and too distant to influence the health of the town population, there are certain uncultivated *Landes*, studded with marshes, which injuriously affect the health of the neighbouring inhabitants with diseases of an intermittent type. Natives as well as strangers, but the latter more than the former, are occasionally seized with fever This is, in almost all cases, traceable to imprudent exposure to the sun's rays. An Englishman, arriving for the first time from his own sunless clime, thinks that he cannot bask enough in the joyous brilliancy of a southern sky, until experience, in the shape often of a sharp attack of fever, convinces him of his mistake; for usually, he is deaf to advice on the subject. 3. That scrofulous and tuberculous diseases are found in a very small proportion to the population; although they are occasionally developed from the same causes which tend to produce them in other climates and communities, viz., unwholesome trades, absence of the sunshine in crowded localities, confined air, poverty, and want of nourishing

food. But as these agents are less in operation in Pau, and its neighbourhood, than in most other localities, they are, to use the language of a late physician to the public hospital at Pau, who furnished the author with several facts on the subject of the diseases of the native population, 'à mon avis en assez faible proportion.' This statement is fully borne out by the appearance of the people, scars of any kind, even those arising from the small-pox, being very uncommon. The author cannot, at this moment, charge his memory with having met, among the natives, any one with *cicatrices* about the throat and neck. 4. Rheumatism is not more common in Pau than in other places; that is, it is not a dominant malady, in such a form as to constitute it the disease which we find in Great Britain and Ireland, excruciating every muscle, fascia, and articulation. But it forms a sort of running accompaniment, rather, to imperfectly developed gout, depending on a congested state of some of the noble organs of life, produced by the sedative influence of the climate on the circulation, and nursed into continuance by diet and acid stimulating wines. With regard to rheumatism, there is a popular and there is a scientific belief: the former being, that the disease is very common; the latter, that it is not so. It is usual for the people themselves to give loosely the name of rheumatism to all vagrant as well as more settled pains, which, in their ignorance of nosological distinctions, they call rheumatism; when, in fact, it amounts frequently to nothing more than the usual effects of checked perspiration, from want of caution, and the pressure of congested veins on contiguous nervous filaments, from a deficiency of active circulation

through the liver. This state of things, possibly, some gentle mercurial stimulant to the source of the symptoms, and an alkaline remedy, would essentially relieve, if not remove, in a great majority of cases. In the few instances of this kind among the French, which the author has had an opportunity of treating in this manner, the symptoms have speedily yielded; and permanent good effects have been the result. Indeed, so strong a hold has this rheumatic nightmare got hold of the prejudices of the people, that if to assist a cure, it be necessary to keep a patient's mind easy on the subject of his real malady, his medical adviser, occasionally, yields to his ignorant fancy, and allows him to give his own appellation to the disease. 5. Bronchitis is not unfrequent at Pau during the winter and spring, but not of the acute character one meets with in England, or even in Nice and the south-east of France. 6. Among the native children, the usual grave maladies are cerebral congestion, and gastro-intestinal irritation; but glandular and mesenteric diseases are very rare. 7. Except among the plethoric and sanguine, where arterial excitement runs higher, the character and progress of diseases are of a comparatively mild type. In fevers of a continued kind, the symptoms always show a greater bias to the typhoid than to the inflammatory; and there is a greater disposition to diseases of a congestive, than inflammatory description.

The population of Pau and its neighbourhood has possessed a very marked exemption from those epidemic diseases which have at different periods raged in Europe.

So far back as the middle of the fourteenth century, when the black plague cut off one-fifth part of the

European population, laying waste immense tracks of country, it is recorded, that the district of Bearn was exempt from the direful visitation: so also, on other occasions, in times little less remote, has it stood forth as an oasis in the desert, free from pestilence, when the destroying angel stretched forth his hand over the palaces of the rich, and the hovels of the poor, in countries not far removed.

When the influenza, in 1837, extended itself with such fatal severity, not only in England, but throughout France and the Peninsula, it did not assume at Pau the importance of an epidemic. It was a mere ephemeral affection; running its course with mildness, and involving no prejudicial consequences in its train. At the distance of seventy miles from Pau, on the Spanish frontier, the military movements of the opposing Carlist and Christino forces were for many days entirely paralysed from the prevailing epidemic—whole battalions on both sides being on the sick list.

It is unnecessary here to record the severity of its attacks in England and France. The obituary of those countries too eloquently testified its devastating power over the sickly and the aged; and the legacies it left are now but too often visible in the shattered frames and ruined health of many, whom the disease attacked, but failed at the time to conquer.

At the period also when the cholera overran Europe, in 1832-33, Pau, and a small surrounding district, were entirely exempt from its visitation. On the north-west, and north, and north-east, twenty-five miles distant, numerous cases occurred; and there were some at Nay, nine miles from Pau; and on the south, where the

disease invaded France on the side of Spain, it advanced within ten miles from Pau. But some meteorological qualities of the atmosphere, with the protection of a beneficent Providence, had guarded the favoured district with happier precautions than any *cordon sanitaire* could have effected for it; for not a single case occurred within the distances mentioned.

Prior to 1855, the cholera approached Pau at three different periods, and from three different quarters; the first being from the north, the second from the east, and the last from the south. It has been remarked to us that, on these occasions, the winds proceeded for some considerable time from the quarters infested with the disease; and that as the latter approached Pau, its progress was, in the three instances, providentially checked by the setting in of a westerly wind.

In 1855, the cholera appeared in several parts of the Department of the Basses Pyrénées, and in some places bordering on the Spanish frontier, where it raged with intensity. At Jurançon, a suburb of Pau, but separated from it by a considerable river, and at Gan, five miles distant, the disease was fatal to many during last autumn; but in the town itself, out of a population of 17,000 souls, during the time the choleraic influence lasted, there were not more than fifty fatal cases. The disease was principally confined to the lunatic asylum and its neighbourhood. It was remarkable, that in Pau itself no artisan or person in easy circumstances, fell a victim to the disease. The following facts connected with the presence of the disease in the lunatic asylum, communicated by Dr. Cazenave, the Director of the Institution (which, by the way, is admirably conducted), are curious. The epi-

demic which first appeared in the establishment lasted a month. Out of 230 inmates of both sexes, 43 were seized, and 30 died (18 men and 12 women). Not one nurse, male or female, was attacked. The wards of those suffering under violent accessions of insanity were those almost exclusively visited by the disease; those of the boarders were exempt.

The most remarkable fact observed, was the complete restoration to reason of those seized by cholera. It appeared as if one evil had put the other to flight; but whenever the cholera disappeared, the mental aberration returned. It was observed also, as singular, that the birds, which had built their nests in myriads about the buildings, entirely disappeared during the prevalence of the disease, and they only returned when it had entirely ceased. The same remarkable absence of birds, in other parts of the Pyrenees visited by the cholera, was the constant subject of observation and remark.

The public registers of Pau show the proportions of deaths to the number of the population, to be highly favourable to it; how much more so than in many other countries, will be evident from the following table, which presents an approximation, taken from general statistical returns:—

In Pau	. . .	1 in 45	dies annually.
Birmingham	. .	1 „ 43	„
London	. . .	1 „ 40	„
France, generally	.	1 „ 39	„
Leghorn	. .	1 „ 35	„
Berlin	. . .	1 „ 34	„
Paris	. . .	1 „ 32	„
Lyons	. . .	1 „ 32	„
Strasburg	. .	1 „ 32	„
Barcelona	. .	1 „ 32	,

In Nice	. . .	1 in 31	dies annually.
Madrid	. . .	1 „ 29	„
Brussels	. .	1 „ 29	„
Naples	. . .	1 „ 28	„
Rome	. . .	1 „ 25	„
Amsterdam	. .	1 „ 24	„
Vienna	. . .	1 „ 22½	„

There are several provinces of France where the mortality ranges as high as one in twenty-seven. Along the south-eastern parts of France, viz. Provence and Languedoc, including Montpellier, Hyères, etc., the proportion is also considerably higher than in the south-west.

Not only is this proportion of deaths to the amount of population so much in favour of Pau, but the absolute range of life is remarkably high. This statement does not rest upon vague assertion, although it is much boasted of by the Bearnois. The following official tables will show what statistics have to offer upon this matter.

In the department of the Basses Pyrénées in a period of 17 years, 1777 persons died from 90 to 95, 649 from 95 to 100, and 168 above 100 years of age. In Pau itself during a period of 20 years, 390 persons died from 80 to 85, 161 from 85 to 90, and 103 from 90 to 100 and upwards.

By the last census, there were in Pau several persons ranging from one hundred to one hundred and four years of age, and in the department also several centenaires, who are described as being still very healthy.

This proportion of longevity to the amount of the population will appear surprisingly high to those who have studied this branch of statistics. Taking the population of Europe, although it is impossible to arrive at anything like accuracy, perhaps few places will be

found to have supplied so large an amount to the small European aggregate. Haller, whose accuracy and industry are well known, collected together the most authentic facts recorded in his time, and found the following to be the relative proportions. Of men who had lived from

100 to 110	years	the instances had been only	1000
110 to 120	,,	,,	60
120 to 130	,,	,,	29
130 to 140	,,	,,	15
140 to 150	,,	,,	6
150 to 169	,,	,,	1

We thus find, that the climate exerts upon the native population an influence decidedly of a non-irritating character in *health,* and of a soothing and highly sedative kind in disease. The former is evidenced by the constitutional slowness of their pulse, compared with that of persons in more exciting atmospheres, which tends to keep up an equable action in the functions of every organ; secondly, from the absence of sudden and violent alternations in their state of health; thirdly, from the prevalence of marked mental tranquillity, indicating the absence of bodily irritation; and lastly, from the high proportion of active and healthy longevity among the inhabitants.

The sedative action of the climate on *disease* is found in the history of the maladies to which the native population is subject, running their course as they do with the comparative absence of strong arterial action.

CHAPTER XII.

EFFECTS OF THE CLIMATE OF PAU ON THE ENGLISH STRANGER IN HEALTH.—PROPORTION OF MORTALITY.—THE CONSTITUTIONAL PREDISPOSITIONS TO DISEASE, OF WHICH THE CLIMATE MAY PREVENT THE DEVELOPMENT.—THE KIND OF DISEASED ACTION SUITED TO THE CURATIVE AND AMELIORATING INFLUENCE OF THE CLIMATE.—THE KIND OF DISEASED ACTION AGGRAVATED BY THE CLIMATE.

WE shall commence this chapter by making a few observations on the effects produced on the Englishman in the possession of full health, on his first arriving in this country, and for some time afterwards, until he has undergone the acclimating process, which all more or less experience, from the undefined *malaise* up to a more deranged state, chiefly arising from a congested condition of the liver, lungs, and brain.

The primary effect of the climate of Pau is sedative, diminishing nervous energy, and thus influencing the state of the arterial circulation and creating venous congestion. The symptoms the healthy stranger complains of, are a languor and listlessness, not proceeding from any deficiency of strength, but from a disinclination to exertion; a sense of fulness in the head and chest, and oppression at the pit of the stomach. Injudicious exposure to the sun's rays, in such a state, is exceedingly likely to produce arterial reaction and accession of feverish symptoms more or less active; but all these may be obviated by care, and any severe climatising attack may be warded off. The use of a mild alterative purgative

occasionally for a short time, the shower bath* on the head, the use of the flesh brush, avoidance of the sun's rays, and active exercise in the morning, or when the heat is not great, will be found effective precautions.

This regimen has been pursued by many, and by those who have practised it, no inconvenience has been felt, from the tendency the climate has to produce congestive disorders; but, on the contrary, a more equal state of health has been the result, even in the case of those whose temperaments were healthy to excess. We have seen, under the influence of the climate and of this regimen, the liability to those distressing headaches, attacking persons of a highly nervo-sanguineous habit, much lessened and in some cases entirely removed, and periodic attacks of inflammation prevented.

From exposure to the sun, the stranger, as well as the native, if not properly protected by warm clothing and by shade, is liable to catarrhal affections and *coups d'air*. This liability may be almost entirely obviated by the wearing of flannel and thick clothing during the winter and spring months. This circumstance cannot be too strongly impressed upon all, whether invalid or not. Although the transitions of temperature from the sun to the shade are considerable, still they are less felt than at Nice, Rome, and other places possessing a higher thermometric range with the prevalence of sharp winds, yet it is at Pau a sufficient inconvenience to be anxiously guarded against by the invalid. In a climate, where the venous circulation is more languid than in an excit-

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* The Author has introduced into use in Pau a hand shower-bath, which answers the purpose very well.

ing atmosphere, it is necessary, by every auxiliary means, to keep up an action on the surface of the body.

The influence of the climate on English children, whose diseases generally arise from great arterial excitability, is more remarkably beneficial even than in adults; in females more than in males; in the sanguine temperament more than in the phlegmatic. The following description of the pulse at different periods of life and in different temperaments, points out the state of the circulation, whether arising from disease or from natural causes, which will be favourably influenced by the climate. 'The pulse of the new-born infant is about 130 to 140 in a minute, nearly twice as frequent as that of an adult; but its frequency soon begins to diminish, its mean rate during the first month being about 120. During the first year it falls to 110, during the second year to about 100; from the third to the sixth year, it may be estimated at about 90, and by the tenth and twelfth year it arrives at the state in which it remains for the greater part of life, being about 75. With respect to the two sexes, it is generally admitted that the pulse of the female is more frequent than that of the male, perhaps eight or ten beats in a minute; it likewise resembles the pulse of youth in its liability to be affected by all those circumstances which influence the state of the circulation. An analogous observation may be made with respect to temperaments. In the sanguine temperament, where the constitution more resembles the state of youth and of the female, the pulse is more frequent and more irritable than in that of an opposite character.'*

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* Dr. Bostock's *Observations on the Pulse.*

As we have observed, in a previous part of this work, when describing the influence of the climate upon the native population, the average quantity of their pulse was less than in persons arriving from more exciting atmospheres. We have found that the climate exercises also a similar influence on the pulse of strangers, after the lapse of time. The pulse in healthy persons is permanently reduced several beats, and acquires a more soft and equable character; and in proportion also among the sick, as the symptoms become ameliorated, so is it attended by a permanent diminution in quantity and an improvement in the quality of the pulse. It is worthy of remark also, and which is almost a corollary to this result, that after some residence in Pau, the system becomes more sensitive to the action of remedies; and medicines which have a lowering tendency must be administered in considerably smaller doses than in Great Britain. For instance, salivation is readily produced; and remedies, whose action is to diminish the force and velocity of the pulse, such as *digitalis*, and the preparations of antimony, ought to be taken in diminished and diminishing doses.

Considering the exceptional nature of the English population in Pau, there being an invalid usually in every family, the amount of mortality is surprisingly small; less, indeed, than in the most favoured districts in England, including, as it there does, the population sound and unsound.

Climate, as a remedial agent, has practically been too little considered in the light of a *preventive*, and too much as a *cure* for disease already established. In the disease most fatal to life—consumption—this truth con-

stantly forces itself on the conviction of those who reside in climates enjoying a reputation for the alleviation or cure of that malady. Symptoms are too often permitted by the medical attendant at home, for many reasons, but for which he is not altogether to blame, to arrive at a stage where no human power and no climate can avail. The many varied irregularities of function which occur in frames predisposed to fatal pulmonary disease, and which, unless arrested by the change from an irritating atmospheric medium to one exercising a sedative power on the circulatory and respiratory machines, must prepare the way to a fatal catastrophe. The opportunity is lost at the point where, with any feasible degree of hope, permanent benefit might be expected to be reaped. It is not when deep organic injury, affecting life at its centre, has taken place, that the cruelty of dispatching the dying sufferer to a distant country, far from cherished sympathies, should be perpetrated. The irritation of a long journey not merely accelerates death, but strews its bed with thorns. It is worth while, therefore, to consider what those predispositions are, which experience and reasoning lead us to believe may be checked by the climate of Pau from progressing in their destructive career. We believe the following to be some of the most important:—

1. As the liability to strumous and lymphatic diseases in children is more a predisposition than an hereditary *germ*, it may not be illogical to infer that a climate, in which the native population is very sparingly visited with these affections, is one, if by times resorted to, calculated to repress the bias to their development.

2. Wherever among children or adults, whether of

suspected strumous taint or not, there is the tumid abdomen, the uncertain appetite, the wasted condition, the waning strength, and the hurried small sharp pulse, indicating the commencement of mesenteric disease.

3. Infantile predisposition to cerebral inflammation, false croup, spasmodic asthma, and to inflammatory attacks in general.

4. The climate acts beneficially also in discouraging the generation of tuberculous matter, by diminishing irritation of the mesenteric glands and lacteal system, and consequently preventing its deposition in different structures.

5. In checking tuberculous deposits from coming to maturity, by diminishing the quantity of the pulse and the frequency of respiration; and thus, in the lungs for instance, preventing inflammatory fluxion to the tuberculous points, which, as foreign bodies, under circumstances which increase the circulation, are liable to take on a softening process.

6. In all tendencies to disease depending on a nervo-sanguineous temperament, such as nervous head-ache, convulsive disorders in the same temperament, and liabilities to periodic inflammatory action: all aberrations of secretion depending on too high a state of irritability of the secreting organ.

7. Indeed, the predispositions which are favourably influenced by the climate of Pau, may be summed up in one general principle:—viz. wherever it depends upon increased nervous and arterial action, permanently produced, either by temperament or by some cause leading to more active disease.

The morbid condition of the system favourably

influenced by the climate, is that depending on continued inflammatory irritation of some important organ, and which, either independently or by sympathy, is being prepared for a disorganised state incompatible with life. As the mode of action of the climate is that of a direct sedative, modifying, and altogether reducing, where this is possible, irritation, both nervous and vascular, it is evident that the chief benefit derivable from it is to be looked for, *par excellence*, in that stage of disease preceding, and, if unchecked, leading to dangerous organic mischief.

This is more particularly the case in irritations of the mucous membranes, whether of the stomach or of the air passages; for if continued irritation of the gastro-intestinal membrane be permitted to exist unchecked, it is sure ultimately to involve the bronchial membrane, most likely to induce the deposition of tuberculous matter in different structures, and ultimately the fatal softening of those deposits. Any one at all acquainted with anatomy is aware of the intimate union of structure and of sympathy that exists between the stomach and lungs. The diaphragm, which divides the cavities of the chest and abdomen, mechanically connects, by its lining membranes, the different organs one with the other. The effects of the intimate nervous sympathy between the functions of digestion and respiration, are constantly visible in disease. Thus we frequently find that the symptoms of continued inflammatory irritation of the stomach itself, before the lungs even have become at all organically implicated in the mischief, in appearance frequently proceed from the chest. We shall not only have cough, but heavy muco-purulent expectoration, with vagrant pains confined to

the region of the chest itself; all which symptoms disappear by reducing the irritation of the digestive organs. Nor is it only by nervous and contiguous sympathy that the lungs take on diseased action, in the wake of long-continued stomachic irritation; but this state exerts a very decided influence on the circulation, urging the impetus of increased arterial action upon weakened and susceptible parts, and in the case of tubercles, in whatever structure they may be found, rousing those foreign bodies into a fatal state of activity.

In inflammations of the bronchi and trachea, to which public speakers are now-a-days so subject, where, with a troublesome cough, there is scanty, viscid expectoration, alteration of the voice, increased pulse, gradual emaciation, and flying pains about the chest, the climate of Pau may be said to exercise its highest powers. The beneficial change observed is in a diminution of pulse, increase of expectoration, decrease of cough, and an improved state of *embonpoint*. This diseased condition of the air-passages, which most frequently follows on continued deranged state of the mucous membrane of the stomach, is a very important stage in the malady, which, too often, if neglected, terminates by dragging in the substance of the lungs themselves, and is frequently the last point in the scale of the disease, where climate and treatment can effect any lasting good.

It is in such a state of things, therefore, before the disease has proceeded further, that we think invalids would derive most chance of advantage by removing from the penetrating and irritating influence of a British winter and spring, and availing themselves instead, of a

soothing and sedative climate. Not only in all cases of chronic inflammation of the mucous membranes, attended with quickened pulse, does the climate of Pau exert a salutary influence; but after irritation has been reduced, and expectoration restored, the use of some of the Pyrenean waters in the neighbourhood, such as Cauterets, the Eaux-Bonnes, etc., tends to infuse into them a fresh principle of vitality, and to bring their action up to a more healthy standard, altering not merely the deranged functions of the pulmonary, but also those of the abdominal mucous membranes.

How much the climate of Pau acts as a soothing remedy in irritations of the lungs, bronchi, and windpipe, is familiarly illustrated every Sunday at Church, and that in a manner which strikes forcibly every one who had not previously passed a winter out of England, and that is the almost entire absence of coughing on the part of the congregation during divine service. This is the more remarkable, when we consider the number of persons who arrive in Pau with delicacy of the pulmonary apparatus; while, in contrast, in ordinary congregations in England, during the winter months, a considerable part of the congregation are in full cry to the manifest interruption of the service.

In mesenteric disease, at its commencement, the climate of Pau is also highly beneficial in checking its progress, and, indeed, in all diseases depending on continued arterial irritation of glandular and membranous structures.

As we desire as much as possible to justify our opinion by that of authors unconnected with Pau, who have studied the subject of its climate, as well as of climates

in general, we make the following quotation from a late work by Dr. Francis on 'Change of Climate':—'But there are few places to be found on the continent possessing so calm and soothing a spring climate as Pau. This is, therefore, emphatically the locality which should be chosen as a temporary spring residence whenever the distance opposes no serious objection, not only by those persons who are subject to nervous and inflammatory dyspepsia, but in every other case, where the irritating air of spring, as it occurs in most countries, is found to disagree. The situation of Pau is almost unique in regard to the effects produced on its climate by the physical disposition of the surrounding country, which effectually shelters it even in the spring from high winds. Still, the situation is by no means confined; but rather the contrary. Situated on a terrace of deep sand and gravel, which drains away from the surface, in a remarkably short time, all the rain that falls; it looks down on several leagues of open country, which stretches away towards the foot of the Pyrenees, and furnishes an admirable foreground and middle distance to one of the most sublime and comprehensive views of a mountain range that can be found in Europe.'

Among the English, the author has not seen rheumatism, in any one case, produced by the climate of Pau, in an acute form; but he has seen several cases of acute rheumatism, complicated with gout, alleviated by a residence in Pau; the paroxysms becoming milder and less frequent. One most aggravated case of an officer now recurs to our memory, who had caught acute rheumatism from exposure to cold on the Himalayeh mountains. He had lost the use of his lower extremities,

and occasionally of the upper, but after two years of severe suffering, and the use of different mineral waters in England and on the continent, was completely cured after a winter's residence in Pau, and a six weeks' use of the Cauterets waters. In this case, the disease was complicated with circumstances connected with constitutional temperament, which aggravated all the symptoms. The attacks were so violent, as to produce enlargement of the ends of the long bones to a considerable size with much effusion surrounding the joint. These symptoms gradually yielded to the soothing influence of climate and treatment, and became more mild and chronic in their character; and, eight months after his arrival, to the astonishment of all, his symptoms entirely disappeared. Worn down to a shadow before his arrival from excessive irritation and want of sleep, ere he departed he had considerably gained condition, and is now again in as good health as ever, doing duty with his regiment in India.

There have been lately under the author's care two gentlemen, who had each suffered a martyrdom from acute rheumatic gout, to the extent of chalky deposits in different joints, and rheumatic inflammation of different *fasciæ*. This state of things had occurred before their arrival in Pau, and was still in operation. One has remained some years in this climate, without any decided inflammatory accessions of an acute kind; the other has passed last summer and winter at Pau and in the Pyrenees with comparative freedom from pain. Not one decided exacerbation of rheumatic symptoms occurred during the winter, and a remarkable improvement took place in the *embonpoint* of the patient, and in

the greater sensibility of the system to the action of remedies.

Although the early part of the winter of 1841-42 was rather more rainy than usual, and not at all a favourable specimen of the Pau climate, a gentleman, a native of Ireland, who had in vain tried the climates of Rome and Naples, and who, to use his own words, was regularly hunted out of Ireland by rheumatism, confessed, that suffering as he had severely for many years, he had never passed so easy a winter since he had first been attacked, not having once had a return of his malady since his arrival in Pau. He also made the observation, so common, and the cause of which appears so unaccountable to all, that rainy weather does not bring a humid state of the atmosphere, as in many other countries; that is, that the bodily feelings do not indicate the presence of moisture acting injuriously on symptoms hitherto invariably aggravated by cold and damp. In Ireland, on the approach of rain, his rheumatism was immediately and painfully increased, while in Pau no change in the state of his feelings was induced by it.

We shall mention another case which has come under our notice, of a gentleman, a native of Pau, who, during a long residence in London, had contracted a severe and inveterate rheumatism, which, on his return, speedily yielded to his native climate; and he has now been many years entirely free from an attack. Here is an instance, not where the disease has been produced by the climate of Pau, but where a native coming from another country has been cured by it; and where the individual has continued unattacked, *malgré* the strong

predisposition which previous and long-continued paroxysms must have created.

We might multiply instances all to the same purpose, to show that, so far from the climate being favourable, under ordinary precautions as to diet and regimen, to the production of rheumatism, it possesses those peculiarly soft and sedative properties suitable, in a marked manner, to the alleviation and cure of the most painful description of rheumatism and rheumatic gout, viz., that connected with tonic irritation of the mucous membranes and increased arterial action in plethoric temperaments. In every such case which has come under the author's notice, the acute symptoms had been invariably reduced to that standard, more compatible with the curative influence of the mineral waters of the Pyrenees, as shall be more fully explained in the sequel.

There are, however, varieties of rheumatism and rheumatic gout, as of other diseases, which are not, and cannot be, alleviated by the climate of Pau, and of these we now proceed to speak.

The diseased state of the system aggravated by the climate is, 1. Where there is a general decline of irritability, or of the powers of life, as evidenced in atonic dyspepsia and in the long train of symptoms that accompany it, and in broken-down constitutions, from long residence in hot climates, where the functional energy of the liver has been reduced to the lowest ebb. 2. In the catarrh of old men, and in chronic bronchitis, where there is a great reduction of tone and excess of expectoration. 3. In chronic rheumatism, attended with a debilitated state of the digestive system, and complicated with atonic gout. 4. In all apoplectic tendencies de-

pending upon passive congestion of any of the nobler organs in leucophlegmatic habits. 5. In chlorosis, from absence of functional tone, and accompanied with a congested state of the uterus. 6. In all diseases where there are congestion of the venous system and diminished nervous energy.

CHAPTER XIII.

OPINION OF DR. LOUIS AS TO THE CLIMATE OF PAU.—RESUMÉ OF THE QUALITIES OF THE CLIMATE.—THE THEORY OF ITS ACTION ON DISEASE.

WHEN the French translation of this work fell, several years ago, under the notice of Dr. Louis, of Paris, one of the first European authorities on the subject of the diseases, for the solace and cure of which invalids go in search of climate, and to whom, as an author, science owes so much, for his able treatise on affections of the chest, he rose from its perusal, as he has since informed the author, with the feeling that it was the production of an enthusiast, who, misled by circumstances of local attachment and by other reasons, had overcoloured the picture, which he had drawn of the scenery, of the *agrémens* of the locality, and of the physical and medical properties of the climate, and of its influence on health and on disease.

Two years and a half ago, the illness of his only child, a son, grown up almost to manhood, suffering from an advanced stage of pulmonary disease, brought Dr. Louis to Pau, where he passed the winter of 1853-54. In the spring, the patient succumbed to the disease. Before Dr. Louis' departure, however, from Pau, he sent to the author the letter, of which the following is a translation, which is the more valuable, as an evidence in favour of

the climate, as coming from one so capable of judging of the subject; and who, had his mind been differently constituted, might, suffering as he was under the domestic calamity he had there experienced, be but little disposed to regard favourably the climate, which had, in his case, failed to answer the end for which he had sought it:—

'*Pau, 23rd April,* 1854.

'MONSIEUR ET HONORÉ CONFRÈRE,

'The painful circumstances which have brought me to Pau have not permitted me to collect the facts which would have given me a profound knowledge of its climate. Nevertheless, as you are desirous to know my opinion on this matter, I hasten to give it to you, regretting, at the same time, that I am not able to add anything essential to that which you have yourself written on the same subject.

'That which most strikes a stranger on arriving in Pau is assuredly the magnificence of the landscape—the rich and charming hills, covered with so many villas bordering the Gave, and filling up, with the intermediate valleys, the immense space comprised between Pau and the Pyrenees, properly so called, which form the background of the picture. Numerous roads, kept in excellent order, allow of excursions at all times over these picturesque hills, whence horizons the most varied and extensive come into view. No one can remain indifferent to beauties of so superior an order, nor can any one experience fatigue in gazing on them, or deny the happy influence which such a spectacle is calculated to exert on those who come to Pau in search of health, and who need to find in such a place the soothing *distractions*

capable of consoling them for the loss of their accustomed habits of living; for this privation is one of the great inconveniences of travelling, and we ought in every way to try to lessen it.

'After the magnificence of the landscape, one is, above all, struck, on arriving at Pau, with the calm of the atmosphere—a calm so complete, from the 25th October to the 13th December of the last year, that I have indeed seen, during that space of time, the leaves of the trees oscillate, but never their branches; so much so, that during the first six weeks of my sojourn in the capital of Bearn, I lived in perpetual astonishment, having never either seen or read of anything similar, except in your work, which I before believed, I must confess, to bear the marks of exaggeration on this point.

'If, since the middle of December, the atmosphere of Pau has not been so perfectly calm, wind has always been rare; and if I cannot affirm from my own personal experience, that it has always been so during the worst season of the year, it is impossible for me to believe, after having consulted the meteorological tables, kept at Pau, and collected the evidence of persons most worthy of confidence, that the winter, which is gone, differed much from those which preceded it.

'A third fact, not less evident, and more remarkable even than the last, is the absence of free humidity in the air of Pau, such as shows itself in the interior of houses, in uninhabited apartments and in staircases, at certain seasons of the year, and which is so common in all climates, and which proves itself to be one of the most active agents of destruction wherever it occurs.

In Pau itself, and in the villas in the neighbouring hills, the houses remain in good order without any precaution.

'These qualities of atmosphere, so rarely found united together, give to the climate of Pau a character altogether special, and ought under many circumstances to make its climate to be preferred to that of Rome, or of Nice, or other towns of the south, whose atmospheres are so often agitated by strong winds which often prevent the invalid from taking exercise in the open air, even when the temperature is sufficiently high. Indeed, persons now in Pau confess to finding themselves better there than at Rome or Nice, where they passed several winters; although the temperature was higher during the bad seasons of the year in those places than at Pau.

'And here a remark so commonly made presents itself, that the same degree of the thermometer is not always accompanied with the same feeling of heat or of cold, that, in fact, on the same day, in the same place, and at the same degree of temperature, one may experience alternately heat and cold, accordingly as there is wind or not; and this explains the possibility of feeling it cold at Rome and warm at Pau, at the same degree of the thermometer. An atmosphere calm, and rarely agitated by violent winds, coupled with a mild temperature, is very suitable to all those who having delicate constitutions require to take exercise, but who, nevertheless, could not without risk expose themselves to brusque variations of weather.

'Persons subject to *pulmonary catarrh* cannot but find themselves wonderfully better, by inhabiting, during the winter, a country where there are rarely three successive

days of frost, and where the atmosphere is free from communicable damp, in spite of the neighbouring river; and where it is rarely agitated by strong winds. The examples, to prove this, are so abundant, that it is unnecessary to cite them.

'But for grave affections of the chest, for invalids suffering from *pulmonary consumption*, does a sojourn at Pau offer any real advantages? Here, as in many other circumstances, it is necessary to make distinctions; and in this instance, to form these maladies into two groups. One is composed of cases whose progress is more or less chronic; the other, of those in which the disease goes through its different stages with more or less rapidity, and where it is constantly accompanied with feverish symptoms, more or less considerable.

'No doubt that in cases belonging to the first group, a sojourn at Pau would be very useful. The invalids, who have consulted me during the last six months, belonged for the most part to this category, being sufferers from consumption in a chronic form, and all congratulated themselves in their residence at Pau, where they found more of solace and of *bien-être* than at Rome or Nice, where several of them had passed one or two winters. Still more, a young lady born in Scotland, from twenty-five to thirty years of age, consumptive for the last seven years, found herself better during the two years that she lived at Pau, than during the two former years, which she had passed in Jamaica, where the winters appeared to her hotter than the summers at Pau

'But every thing leads us to believe that it is not equally so with cases of consumption belonging to the second class, where the feverish symptoms are more or

less marked, where there are several daily accessions of fever, and where the wasting of the body goes on with more or less rapidity. But even in such cases, what climate can offer more advantages than that of Pau? for, as I have just indicated by an instance, warm winters will not do everything. Ask of a climate all that you can ask of it in reason, but expect nothing more. And, in order to avoid deplorable mistakes in therapeutics,* let us accept on this point only facts collected with precision, and on the reality of which no doubt can rest; for if therapeutics be the aim of the physician, the only therapeutics entitled to consideration, are those based on facts, and sufficiently numerous.

'You see, Monsieur et honoré Confrère, that I know little concerning the climate of Pau except what you have taught us; and I have not had sufficient opportunity to verify all that you have written concerning it. But if I only know it and its merits imperfectly, I am sufficiently acquainted with the drawbacks which exist elsewhere; and without wishing to disparage the value of the climates of Rome and Nice in the point of view under consideration; if, I say, in this my great deficiency of knowledge on the subject of these climates, I were called on to give advice to an individual who wished to avoid a severe winter, I would recommend him, as I have often already done to others, to direct his steps to Pau; where he will find a mild temperature, an atmosphere rarely agitated by winds, and exempt from communicable humidity, magnificent promenades, and all the appliances suitable to the wants of a rich com-

* The science of the action of remedies.

munity; and, as you and I know, physicians deserving of entire confidence.

Veuillez agréer, etc., etc.,

(*Signed*) LOUIS.'

In concluding this part of the subject, which has reference to Pau and its climate, we shall, for the sake of clearness, sum up what has been said in a meteorological and medical point of view, as follows. We say, then, from all we have read, heard, or seen, that the climate possesses these leading properties.

1. Its soil being gravelly, to a great depth, absorbs most readily any quantity of moisture that may fall, so that there is no stagnant water to be re-absorbed into the atmosphere.

2. From the topographic features of the country surrounding Pau, it is almost completely shielded from wind; so much so that, during successive days, it is difficult to indicate the point from which the wind blows.

3. From the bias which the wind has to blow from the south-west, west, and north-west, we find, that if in the morning it proceeds from the east, and at midday from the south, which is not unfrequently the case, more or less electric matter is thus generated. But the decline of the sun seems to solicit the wind from the west, and to invite Atlantic vapour to absorb the excess of electric fluid, which, when not so expended as in Nice, Naples, and the south-east of France, exerts so irritating an influence on excitable temperaments and on inflammatory affections of membranes and glands. It is from this cause, also, that much more rain falls

during the night than after the rising of the sun; and a knowledge of this fact will tend to moderate the fears of strangers, who would otherwise, no doubt, form their ideas of the wetness of the climate by the number of days, in which rain falls, as indicated by the meteorological tables.

4. Although there are considerable atmospheric variations at Pau, still, from the great absence of wind, these variations pass, by comparison, harmlessly over the invalid. Indeed, the human system in health and disease seems to partake, in some degree, of the tranquillity which reigns abroad in the external world.

5. The marked absence of free communicable damp also in the atmosphere, as indicated by the hygrometer, is a condition of atmosphere highly favourable to the alleviation and cure of diseases the produce of exciting and humid climes.

6. Acting on persons in health, the climate brings down the standard of tone, and has a tendency to modify the natural temperament, the sanguine making a move towards the phlegmatic, and the choleric towards the melancholy. On the same principle, no doubt, it is, that diseases of a mixed nervous and inflammatory character come to have their symptoms modified and frequently subdued.

7. That kind of functional derangement of a tonic irritable type, which paves the way to organic mischief, it will be seen, from what has been previously said, is the state of things for the alleviation and cure of which the qualities of the climate of Pau are most suited, as well as in preventing the development of pending predispositions to disease, where there is a strong hereditary bias to it.

8. In short, it would seem that the climate of Pau derives a great deal of its value from its neutral properties; from its being neither too hot nor too cold, and from its possessing neither the irritating qualities of a dry climate nor the depressing ones of an atmosphere, surcharged with communicable damp, and from its great exemption from atmospheric agitation.

CHAPTER XIV.

BIARRITZ.— SHORT DESCRIPTIVE NOTICE OF IT. — ITS CLIMATE AND SEA-BATHS. — THEIR GOOD EFFECTS ON CERTAIN TEMPERAMENTS DEPENDING ON CONSTITUTIONAL DEBILITY. — BIARRITZ AUXILIARY TO PAU, AS CARRYING OUT THE BENEFICIAL RESULTS, IN A MEDICAL POINT OF VIEW, DERIVED FROM THE CLIMATE OF THE LATTER. — MR. INGLIS' SKETCH OF BIARRITZ, ITS BATHS, ETC.

THERE is a considerable advantage to the invalid who passes a winter in Pau over that which he would have in many other places of temporary residence on the continent, that at the end of the season there are many outlets open to him, either for purposes of health or recreation. For instance, in a few hours, he can escape into the cool recesses of the mountains, a description of which shall be fully given hereafter, where nature has prodigally supplied the healing resources of their mineral springs; or to Biarritz, a sea-bathing place in the Bay of Biscay, sixty-five miles from Pau, which, in twenty-five years, has sprung up from the state of a fishing hamlet to be the resort, during a part of the summer, of the French imperial court, and of numerous families, French, Spanish and English.

We well remember that nearly twenty years ago, scarcely any French family ever thought of proceeding to the sea-side for the purposes of bathing. At that time, it was left to the English residents in the Pyrenees,

and who frequented Biarritz during the summer, to encourage them by their example, and to allure them by a recital of the beneficial effects derived by the sickly, as well as by the sound, from the invigorating breezes and the tonic baths.

A little before that time there was no carriage road from Bayonne to Biarritz, the only conveyance being *en cacolet*, which contrivance consisted of a pair of panniers laid over the back of a horse or mule, into each of which a traveller of equal weight, if possible, had to perch himself at the same instant with his fellow, and to preserve their position as best they could. In the event of one being lighter than the other, there was a make-weight of stones put along with him in the pannier to adjust the equilibrium.

Since those primitive times excellent roads have been made; the cacolet now belongs to the almost forgotten past, and during four or five months of the summer, which constitutes the season so called *par excellence*, diligences and omnibuses leave each place every quarter of an hour, from six o'clock in the morning till ten o'clock at night, filled with passengers.

Biarritz is indebted to two circumstances, independently of its own merits, for its rapid rise; the first, the residence of English families at Pau, who have been in the habit of taking up their summer abode at Biarritz for the benefit of sea-bathing; the second, the civil war of succession in Spain, which expatriated so many of the best families, who, desirous to be near the frontier, took up their quarters at Bayonne, Biarritz, etc., anxiously looking for the time when they might, in safety, return to their own country. Biarritz thus became a favourite

place of resort for Spaniards of the highest class; and to this circumstance, it is indirectly owing that it has now become the residence of the Emperor and Empress of the French during a portion of each summer.

Among the Spanish families who frequented Biarritz, during the time we have referred to, was the Countess de Montijo and her two daughters, one now the Empress of the French, and the other the Duchess d'Albe. Her Majesty, since her marriage, has there passed a part of two summers; and orders have been given, since the birth of the Imperial Prince, to have the chateau ready to receive their majesties by the end of May of this year, 1856. There could be no higher compliment paid to Biarritz than this, which the residence of their majesties affords, since, having the whole of the sea-board of France to choose from, they have preferred Biarritz, a place without any local attractions, in the western extremity of the kingdom, and have there caused to be erected an expensive chateau.

But it is necessary to enter a little more into detail. Biarritz is distant five miles from Bayonne, and is very accessible to a person coming from England. The rail-road being now finished from Bordeaux to Bayonne, a person starting from London can go to within five miles of Biarritz by steam and railway comfortably in forty-eight hours. Indeed, for such families as decide on passing a winter at Pau, there can be no more convenient way of proceeding thither than that of arriving at Biarritz and passing there some time for sea-bathing before taking up winter quarters. In a few hours, *en attendant*, one can run up to Pau, and there in person, for no one can know so well as the individual concerned

what will suit him, look over the apartments that may be to let, and take that which is most convenient.

Biarritz is most irregularly built, some parts of it being situated on a succession of cliffs, others in a species of ravine. The houses being mostly intended for summer use have all more or less a north-western aspect. And this is a matter of great importance, for, in a southern climate, when a house has a southern exposure, its inhabitants are condemned during the day to darkness, for the admission of the sun's rays into the house would be intolerable; whereas, with a north-western aspect, the houses receive through their open windows the refreshing sea breeze from the west, which most generally sets in every morning about ten o'clock, and the snuffing in of which is a real luxury, and goes far to neutralize the effects of a southern sun.

The health of the native population at Biarritz is most satisfactory; and the advanced ages which they attain, as evidenced by the registers and the inscriptions on the tombstones in their romantic churchyard, prove how favourable the climate is, even with the drawback of hard work, the accidents of the sea, and of food not of the most fortifying and nutritive description.

Last summer (1855) the cholera for the first time invaded from Spain the country on the frontier. Bayonne, and even hamlets in the immediate vicinity of Biarritz, suffered very much from the scourge. There was quite a panic. From St. Jean de Luz, a sea-bathing place some miles from Biarritz, where 400 persons died in the course of a few weeks, and from Biarritz also, there was a *sauve qui peut* retreat. Few, except the English, among whom was the author, remained at the latter

place, and in a few days the town, where before not a room was to be had, became completely deserted. Hemmed in, everywhere, on the land side, by the disease, Biarritz remained entirely exempt, and only two deaths occurred, and these were of persons who had brought it from Bayonne with them.

Biarritz contains several excellent hotels, with *cuisines*, which would not be a reproach to the capital, and some hundreds of houses, which have chiefly sprung up during the past twenty years. All these houses are to be let during the season, and of late years the price of them has been progressively augmenting. Those which have a view of the sea are, of course, most in request; but even the most expensive are not more so than one would have to pay at a sea-bathing place in England of any repute. The usual tariff of prices, till within the last year or two, was at the rate of 1*s.* 6*d.* to 2*s.* a bed per day, two beds being usually placed in one chamber; and even at the present time this tariff prevails with many persons who let apartments. The annual increase of visitors is very great; but new houses are constantly being built to meet the demand.

There is no object of interest in Biarritz. In six hours, by diligence, one can get to St. Sebastian through a beautiful country, and this is an excursion often made. Cambo, also a watering-place, about sixteen miles off among the mountains, not far from the famed Roncesvalles and the Pas de Roland, will repay the trouble of a visit. Bayonne, from its near neighbourhood and the superiority of its shops, is a great resource to the visitors at Biarritz. There the cathedral, built during the English occupation under the Black Prince, and the

citadel, a good specimen of fortification, are worthy of notice.

At Bayonne, our countrymen always meet with great civility from the English consul, Mr. Graham, who acts also as banker.

There is English service every Sunday at Biarritz, and most generally an English physician passes the summer months there.

But what are the advantages which Biarritz possesses over sea-bathing places in England? It may be answered that, from the warmth of the atmosphere, the high temperature of the sea, and the greater strength of saline particles present in it, from the increased evaporation which is constantly going on, invalids, in too delicate a state of health, to render it safe for them to bathe in a northern climate, can there undergo a course of bathing, not only with impunity, but often with absolute advantage.

When we consider of how much importance it is to the healthy action of every internal organ, that the functions of the skin should be actively carried on, and when we know that no regimen conduces more to this than sea-bathing, at such a natural degree of temperature, that the weakest organs with safety re-act under its influence, it is evident that much good may be expected in many weak and ill-conditioned temperaments by this means, and threatened organic derangement be placed under a simple and rational mode of preventive treatment. The soft, and at the same time, invigorating sea-breeze from the west aids powerfully the efficacy of the baths on delicate persons, who in a northerly climate would be painfully susceptible to cold winds and humid skies.

The best programme at Biarritz for the bathers is to rise early, to bathe and to take exercise before breakfast; to read and write during the forenoon, with the windows open to the breeze, or to go down to the beach, and under the shade of the rocks watch the amusing proceedings in the Vieux Port, a cove, where persons of both sexes, very decorously costumed, bathe in succession all day long; and often much mirth and amusement are elicited by the strange appearances which the *dramatis personæ* present. Then an early dinner is usually taken; and nothing can be more delightful than walking and sitting out in the cool evenings on the cliffs, and doubly so when the moon lends her softening light.

Speaking of Biarritz, Mr. Inglis* says, 'As a bathing place, it is absolutely perfect. There is a creek about three hundred yards in depth, not above fifty yards across the mouth, but widening into a small semi-circle. Rocks four or five hundred feet high, flank both sides, and the little waves curl over on the hardest and most beautiful sand in the world. At all times, whether at full or ebb tide, there is sufficient depth of water in this creek for the bather; and yet the timid may find ground twenty or thirty yards within water-mark. Upon the smooth sand, a little way beyond water mark, several *marquees* are pitched for the use of bathers, and morning, noon, and evening, but especially at the warmest time of the day, this little creek presents the liveliest scene imaginable.

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* '*Switzerland, the South of France and the Pyrenees*,' vol. II. p. 205.

'Both sexes bathe in this creek; but gentlemen, of course, wear strict costumes, which are provided by the keepers of the *marquees*, and thus attired, the water is quite a lounge, where the prettiest conversations are carried on. Unless the wind blow, strong from the north-west, the creek is always calm. A storm without from any other quarter, only makes a little commotion within, but no waves or surf. The water is beautifully clear; and in sunny days, the concentrated rays and the reflection from the sides of the creek render it a tepid bath. One is not obliged at Biarritz to bathe in the creek I have been speaking of. There are many lesser retired creeks or shelving rocks, suited to all degrees of prowess, courage and modesty. I shall always recollect my *séjour* at Biarritz, with the truest pleasure.'

In cases where any English family may have passed one winter in Pau for the health of some one of its members, and that its climate has answered all the expectations which had been formed of it; but that it has been considered desirable to return there again a second year, the interval between the two seasons can be advantageously disposed of by passing it at Biarritz, for its air has the merit of being soothing and invigorating at the same time; the west-wind which is the prevailing sea-breeze, being softened and cooled down by passing over a boundless waste of waters.

CHAPTER XV.

REVIEW OF THE CLIMATES OF MONTPELLIER, HYÈRES, NICE, ROME, FLORENCE, PISA AND NAPLES.—THEIR EFFECTS ON HEALTH AND DISEASE.—THE MORTALITY COMPARED WITH PAU.

HAVING now exhausted the subject of Pau and its accessories, we shall conclude this section of the work by comparing some of the general features of climate observable in certain other places, celebrated as a resort for invalids, relatively with Pau. The best evidence, that can be offered, will be given from the works of writers who have had no interest in exaggerating any circumstances favourable or unfavourable to the respective climates treated of.

And first with regard to the climates of Provence and Languedoc, on which, in an earlier part of this work, we have already incidentally made some remarks, Dr. Burgess writes*—'Although the towns of Aix and Montpellier afforded convenient resting-places for the exhausted pilgrims to refresh themselves, when half way on a long and fatiguing journey—if, indeed, the alleged sanative influence of the climate did not induce the invalids to remain altogether—I am yet utterly at a loss to conceive how either of these places ever acquired a name for salubrity; as I really know of no place more

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* *Climate of Italy in Relation to Pulmonary Consumption* 1852, p. 43.

unfavourable for patients suffering from organic disease of the lungs than the far-famed and much frequented depôts of consumption, Aix and Montpellier.

'In this part of France there is generally a clear blue sky, but there the air is sharp and biting, especially in the spring; and the frequent occurrence of the noxious winds, the *Bise* and the *Marin*, one cold and cutting, the other damp, irritates weak lungs and excites coughing. No atmosphere, however pure, if occasionally keen and piercing, can prove beneficial for pulmonary consumption.'

'Less rain falls here, I believe,' says Dr. Higgins,* 'than in any other part of Europe. It is no uncommon occurrence for a drought to continue, without intermission, at Montpellier, Aix, and Marseilles, during four or five months together, while in the winter it is considerably drier and colder than in the south-west. The *Bise* and *Mistral* winds exert a most deleterious influence on delicate people in general, but more especially on those whose lungs are implicated. We are aware how sensitive the pulmonary apparatus of phthisical patients is, and how injuriously cold acts upon it; in fact, a mild and balmy aerial fomentation (if I may so say) is by far the most efficacious palliative and check on the march of this desolating disorder.'

But this climate, although decidedly improper for consumptive patients, and for those labouring under irritation of the mucous membranes of the stomach, larynx, and trachea, may prove useful to invalids of a

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* *Observations on Climate, Diet, and Medical Treatment, in France and England*, by CHARLES HIGGINS, M.D., p. 26.

different class. On persons of a torpid or relaxed habit of body, and of a gloomy, desponding cast of mind, with whom a moist, relaxing atmosphere disagrees, the keen, bracing, dry air of Provence, and its brilliant skies, will often produce a beneficial effect. In some cases of intermittent fevers, also, it proves favourable.'*

Of late years, *Hyères* has become a place of resort, although not to a great extent, for invalid English. It is a town situated on the southern slope of a hill which overlooks the Mediterranean, a few miles from the sea and from Toulon. Although the town itself is in some places protected from the *Mistral*, still it is felt severely in other parts, and blows frequently with intenseness, out of the protection of the town, to such an extent as to render it often unsafe for a consumptive or very delicate person to take exercise, either on foot or on horseback.

Let us move still further to the east, and we have some of the features of Nice, so entirely opposite to Pau, graphically described by a resident physician, who very candidly records his opinion as to the injurious effects of its spring upon diseases, for which the climate of Pau, at all seasons, is uniformly suitable, namely, those of membranous and glandular irritation.

Dr. Farr† says—'Independently of the *Mistral*, from which Nice is more sheltered, from its topographical situation, than many other parts of Provence, the easterly wind sets in with the first moon in March, called by the natives the Blood-red Moon; it is severely felt by the invalid and those in delicate health, and even the strong

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* Clark, *On Climate*, p. 196.

† *On the Climate of Nice*, by W. Farr, M.D., p. 16.

feel and acknowledge its evil tendency. Last season, the number of patients of all nations, labouring under affections of the chest, might have amounted to thirty; the great majority had greatly improved their state of health up to this period, and they were daily to be seen like butterflies in the sun, riding, driving, and walking over hill and dale. I besought those whom I attended, and many whom I did not, to quit Nice before the birth of this fatal moon; but they heeded not my counsel, and thought I had over-rated the danger. They remained, and the day after, this easterly wind began; of the thirty I only met one afterwards, and him I had often previously pronounced to have no disease of the lungs.'

There can be no two climates more opposite in their meteorological properties than Pau and Nice, and, experimentally, no two where the action upon disease is so oppositely marked. For all diseases requiring a sedative to the nervous and circulatory systems, the climate of Pau is peculiarly adapted; while for others of an opposite type, that of Nice would seem in an equal degree to be beneficial.

'The grand objection' (says Dr. Farr, page 10) 'to Nice is its dryness, and the exciting and irritating nature of its atmosphere; but if, in some diseases, these are found to aggravate the malady, in others of an opposite tendency they are productive of good, so that the evil complained of in the one case is counterbalanced by the good produced on the other. It is the fault of either the patient or his medical adviser, if he comes to a climate ill calculated to ameliorate his condition; but it detracts nothing from the reputed character of the climate in diseases in which it is known to be beneficial;

it simply leaves the patient thus misdirected, and ill-sent, in a worse condition than on his arrival. How often do those, however, who live and exercise their profession on the continent, see instances of patients being thus erroneously directed to many other climates besides Nice; and not to those alone, where air and climate are to effect everything, but even to those whose mineral waters are the therapeutic agents.'

Dr. Pugh remarks, in his Observations, p. 24, that—'In the winter months, you never meet an inhabitant of Nice without his cloak wrapped about him, and his mouth and nose stopped with his handkerchief or muff, that the air might not enter into his lungs, without passing through a medium to soften it.'

The diseases to which the native population of Nice are subject are of a more acute and inflammatory type than we find in those of Pau. Indeed, they are of a description little known in this place, and belong to a class of diseases, for the prevention and cure of which the climate of Pau is suited. Sir James Clark* says—'That catarrhal affections and inflammations of the lungs rank among the most frequent diseases. The latter is especially common and violent in the spring, and is generally complicated with irritation of the digestive organs. Gastric fever and chronic gastritis are very common diseases. Indeed, gastric irritation appears to be very prevalent, and almost all other diseases are complicated with more or less of it.'

The following valuable observations by Sir James Clark may almost serve as a guide, as far as they go, to

* Clark, *On Climate*, p. 206.

those diseases in the alleviation and cure of which the Pau climate exerts so decided an influence; for we are convinced, from considerable experience and observation, that the class of diseases described by Sir James as unsuited to the climate of Nice, are those suited to the climate of Pau, and *vice versâ*:—'In consumption*—the disease with which the climate of Nice has been chiefly associated in the minds of medical men in this country—little benefit is, I fear, to be expected from it. When this disease is complicated with an irritable state of the mucous membrane of the *larynx*, *trachea*, or *bronchi*, or of the stomach, the climate is decidedly unfavourable; and without extreme care on the part of the patient, and a very strict regimen, the complaint will, in all probability, be aggravated by a residence at Nice. Indeed, the cases of consumption which ought to be sent to this place are of rare occurrence. If there be any such, it is when the disease exists in torpid habits of little susceptibility, and is free from the complications just mentioned. In chronic bronchitis, which often simulates phthisis, very salutary effects are produced by a residence at this place.' Indeed, in all diseases connected with an atonic state of the system, such as the catarrh of old men, chronic rheumatism, and in all cases connected with torpor and relaxation of the constitution, the climate of Nice effects most beneficial changes, while the climate of Pau adds to the organic and functional atony.

Mons. Carrière, in his work on the Climate of Italy, when criticising Sir James Clark's opinions, just quoted, as to the Climate of Nice, says—'It is surprising that

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* CLARK, *On Climate*, p. 206.

this author has not remarked upon the favourable influence of the climate on the spleen of his countrymen, and the melancholic diseases of the same class.'

In fine, judging of the relative merits of the two climates on health and on disease, we ought not to omit to bring before the reader the proportion of mortality in each—

In Pau, one person in every 45 dies annually,
In Nice, one „ „ 31 „ „

showing a great proportion in favour of the salubrity of the climate of Pau.

Differing, it has been seen, as the climates of Pau and Nice do, *toto cælo*, our next comparison, namely, with ROME, brings the qualities of the two climates more in accordance with each other. Still, with all the respect with which so excellent an authority as Sir James Clark deserves to be viewed, it is probable that the climate of Rome possesses a less sedative influence over active irritation of the bronchial membrane, combined with nervous dyspepsia and acute rheumatism, than Pau. Several instances have come to the author's knowledge, where sub-acute irritable bronchitis, accompanied with troublesome cough, has not been at all benefited by a winter's residence at Rome, but has yielded to the Pau climate; at least, in so far as symptoms went, namely, in restoration of healthy expectoration and great diminution of cough. Also in cases of rheumatism and rheumatic gout, where Rome has failed to give that relief, for which sufferers have been obliged to leave home, Pau has effected the desired object.

It is practically out of the question, situated as a medical man is, in a small English society on the

continent, to give the details of individual cases. It would neither be acting up to his own duty, nor just to the feelings of his patients; all he can do with propriety, is to generalize into principles the experience he has had of cases. The author can with truth say, that he has not manufactured any cases to suit the occasions; and that whatever rules or principles he may have propounded, are the results of experience anxiously considered.

There are so many points of suitableness to the same class of disease common to the climates of Rome and Pau, as laid down by Sir James Clark in his observations on the former, that we will quote them, satisfied that the learned author will not object to the use we make of his opinions. 'It would appear that the climate of Rome, with regard to its physical qualities, is one of the best in Italy. One peculiarity of it deserving of notice is the stillness of its atmosphere, high winds being comparatively of rare occurrence. This quality of calmness is valuable in a winter-climate for pulmonary diseases, and to invalids generally, as it admits of their taking exercise in the open air, at a much lower temperature than they could otherwise do. To patients, labouring under bronchial irritation, wind is peculiarly hurtful.' 'Among the diseases benefited by a residence at Rome, I may rank consumption. In the early stages of this affection, I have generally found the climate favourable. I have frequently known patients, who had left England labouring under symptoms that gave much and just alarm, and which continued during the whole journey, get entirely rid of them after a short residence at Rome. In bronchial affections, the climate is very generally

beneficial, especially in the cases where there prevails much irritability of the mucous membrane, with much sensibility to harsh cold winds.'

We will add to these opinions, that of another English physician, Dr. Weatherhead, who had acquired, during several years' practice of his profession at Rome, considerable knowledge of the virtues of the climate. It is not so favourable as those we have just quoted. The gist of his experience was, that the air is heavy and damp, and that certainly there are diseases of the lungs, for which such an atmosphere might answer, but he was certain, if it did not do so, that the experiment could not be made with impunity; and yet, that it was not in the power of a conscientious physician to say *a priori* whether the climate would be favourable or not to any given patient. But further, during the spring, and even winter, an icy wind pours down suddenly from the Apennines. He was persuaded that more than one consumptive patient, who, in another country, would have slowly wended his way to the grave, has at Rome shortened the term of his days, arising from this and other local causes.

The description given by Sir J. Clark would, by substituting Pau for Rome, be sufficiently accurate as far as it goes. Still it is presumed, that there are circumstances connected with the former, *cæteris paribus*, which render it a more eligible residence for invalids similarly circumstanced. 1. In the first place, it is nearer to England, and easily reached by railroad or a short sea voyage. 2. While at an average there is an equal number of rainy days in both places, the soil of Pau is more absorbent, and consequently much less evaporation goes on. 3. Pau is not

subject to periodic winds,* which in a short time undo much of the benefit derived from its more favourable weather. 4. Pau is not subject to any epidemic as Rome is. 5. Pau has not the inducement of long chilly galleries of fine arts, or the seductions of the opera to tempt the invalid from the regulated atmosphere suited to his case. 6. Pau has the advantage in winter over Rome, of the curative means of the Eaux-Bonnes, and other mineral waters of the Pyrenees, which are powerful auxiliaries to the climate in the treatment of some affections of the mucous membrane. 7. The neighbourhood of the watering-places of the Pyrenees, where, on the approach of summer, a few hours take the invalid into any variety of atmosphere the most suited to his taste or necessities, is a matter of some importance.

It seems, on a review of the comparison of Rome and Pau, that the climate of the former is less favourable to the quietude of the nervous and circulatory system than that of the latter. In Pau, the climate exerts a direct sedative influence on the nervous system, evidenced by the disappearance of symptoms particularly of a mixed *nervo-sanguineous* kind; thus, for instance, the beneficial

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* 'The Tramontana is a dry, keen, and irritating wind, resembling in its effects the cold winds of Provence, and is equally to be guarded against by invalids.' Again, 'In the months of March and April, winds are more frequent at Rome; they set in generally in the forenoon, and continue till sunset, when they subside, leaving the nights calm and serene. The effects of these keen spring winds, combined with that of a powerful sun, are severely felt by the sensitive invalid, though, as I could observe or learn from the testimony of others, in a less degree than at Naples and Nice, and perhaps even at Pisa.'—CLARK, *On Climate*, p. 225.

effect it has on the distressing affection called nervous headache, occurring in irritable plethoric habits; whereas in Rome, the nervous system* of the natives has been so acuminated, that they

Die of a rose in aromatic pain.

In Rome, during the spring months, diseases put on severe inflammatory types; in Pau the type of disease is rarely in inflammatory excess. The tendency of constitutional disturbance, in the latter place, whether from local disease or as the result of atmospheric causes, is that of fever of the simple continued form, with a tendency to degenerate into the typhoid.

Dr. Mattæi, in his work, speaks of the great liability of the Romans to sudden death. Dr. James Johnson, in his 'Change of Air,' p. 299, says, that the Roman physicians have not been explicit as to whether this terrible agent operates by means of apoplexy or aneurism, but one thing is certain, in his opinion, that the climate of the eternal city is very hostile to the brain and nervous system, and consequently that all those who have a tendency to affections of the head should avoid it.

Although, then, there is a great resemblance in some of the general features of climate between Rome and Pau, yet it has been seen that there are also important

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* The next circumstance connected with the diseases of Rome, which deserves notice, is the peculiar sensibility of the nervous system of its inhabitants. This is evinced in a very peculiar manner by the disposition to convulsive affections, and the singular sensitiveness of the Romans, especially the females, to perfumes.—CLARK, *On Climate*, p. 230.

distinctions, and the distinction is very remarkable also in the proportion of mortality in the two places.

In Pau one person in every 45 dies annually.

In Rome one „ „ 25 „ „

FLORENCE, a city built on the Arno, is one of the most agreeable residences abroad to a person in robust health; but from its topographic position in reference to the Apennines, which almost surround it with their snow-capped summits, and to the valley through which the river flows, it is subject in the winter and spring months to severe cutting winds, which render its climate very unfavourable to delicate and consumptive persons. Sir James Clark says,* I do not know any class of 'invalids for whom Florence offers a favourable residence.' Dr. Down, who passed some years at Florence as a practising physician, says that 'the winter is extremely severe and wet, and the spring changeable, consequently highly injurious in diseases of the chest.' Dr. Burgess† says, 'In no part of England could a climate be found more unfavourable for consumptive invalids than that of Florence, a town built in a deep ravine, almost surrounded by the Apennines, and intersected by a squalid river.' And, again, we quote from the same author, p. 144, 'The preceding observations are sufficiently characteristic of the climate of Florence, and significant as to the baneful effects, even a temporary residence, must produce upon the health of foreign consumptive invalids. Extreme cold in winter, great heat in summer, the

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* CLARK, *On Climate*, p. 218.

† *Climate of Italy, in Relation to Pulmonary Consumption*, by T. H. BURGESS, M.D., p. 134.

prevalence of the northerly winds, the chilling effects of which are not always neutralised by the antagonistic winds, rapid and violent transitions profoundly affecting the system even in healthy persons.' 'The irritability of constitution in Florentines is strikingly displayed, when the system labours under disease. Nervous excitability is a predominant feature in almost every morbid condition. Even inflammatory diseases take a nervous form, and pneumonia is marked by a suffocating character and rapid progress to its last stage.'

The changes of temperature during the different seasons, will be seen from the following details by J. F. Schouw, the result of nineteen years' observation. The mean of the winter minima is 1.11; the mean of the maxima of the same season is 14.01. The mean of the minima of the spring, is 5.36; that of the maxima, 22.41; for summer, the former gives 15.06, the latter 31.08; and for autumn the corresponding numbers are 7.30, and 23.37. The annual mean of the minima and maxima calculated upon the preceding results is, for the first, 6.69, and for the second 22.76. The same details give as the means of the absolute minima and maxima, 5.3, and 35, which shews sufficiently the depression of the temperature in winter, and the considerable elevation in summer.*

PISA stands on the banks of the Arno, forty-eight Tuscan miles distant from Florence, fourteen from Leghorn, and six from the Mediterranean. This town which is computed to have at one time contained 120,000 inhabitants, has not now more than a sixth of that number,

* *Climate of Italy*, p. 142.

and everywhere shows the most striking marks of having fallen from its high estate.

It has had for a long time a considerable reputation as a place of resort for consumptive invalids. The favoured part of the town, the Lung' Arno, is, from its position, well sheltered from wind, and has a southern aspect, and is the head quarters of the invalids. The climate of Pisa is quite opposite in its properties to those of Nice and Naples, and resembles, in some degree, that of Rome, and in a less degree, that of Pau. It is sedative like Pau and Rome, but from the amount of communicable humidity in its atmosphere, it is lowering and relaxing. Indeed few authors who have written on the subject of climate have said much in its favour. Sir James Clark, the father of the science, merely says, p. 220, that for 'invalids who are almost confined to the house, or whose power of taking exercise is much limited, Pisa offers advantages over either Rome or Nice.' M. Carrière, the strenuous and able advocate of Italian climates, acknowledges that he has failed to discover any solid foundation for the sanative fame of the climate of Pisa, and still further on* says, 'The softness peculiar to a Pisan climate, diminishes exaggerated sensibility, and calms pulmonary irritation, under certain conditions of temperament. With a nervous temperament it will be favourable; with a lymphatic, it will produce an opposite effect. This quality of the air, efficacious during the first period of consumption, and at the commencement of the second stage, may even quickly produce fatal results, when the

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* *Le Climat de l'Italie, sur le Rapport Hygiénique et Médical*, p. 420.

disease has already undermined the strength of the system. It is a sad tale to tell, but a great many invalids die a few weeks after their arrival.' Dr. Burgess,* the latest writer on the subject of Italian climates, but it must be confessed, a great sceptic as to the efficacy of any foreign climate on diseases of the English, writes as follows, 'Pisa is now, and has been for many years, the great central depot for foreign consumptive invalids throughout Italy. The fame of its climate, in cases of pulmonary consumption, is universal, and quite equal to that of Rome. Yet singular to relate, that there is no other medical station in any part of the continent whose climate has been less carefully investigated by scientific men, and concerning which there are fewer positive data. This climate is mainly indebted to tradition, and some vague unsupported statements, and random assertions, for its wide spread renown. There is, however, one element in the composition of the Pisan climate pretty well ascertained, and admitted by writers of every shade, namely that it is 'horribly rainy,' in fact, that rain forms one of the essential conditions of the climate.' Further on he writes, at p. 157, 'The excess of humidity, and the warm temperature of the Pisan climate, depress the vital force, induce an overwhelming lassitude, and are in my opinion most unfavourable elements in a climate so generally recommended for pulmonary consumption. Whatever effect the humid mildness of the air may have in diminishing excitability, and allaying pulmonary irritation in patients of a nervous temperament, it is decidedly injurious in those of a feeble and lymphatic habit.'

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* *Climate of Italy*, 1852, p. 148.

The last climate which we shall notice thus cursorily, is that of NAPLES, which in its irritating properties on the nervous and vascular system, is an exaggeration of the climate of Nice. In both places, the autumn and winter are generally mild; but during the spring, the winds are sharp and irritating, and these alternate with the Sirocco. 'Of Naples as a residence for invalids,' says Sir James Clark, p. 239, 'it is unnecessary to say much. Consumptive patients should certainly not be sent there.' Dr. Burgess, p. 190, writes, 'Naples, perhaps, affords the worst climate in Europe for complaints of the chest, and the winter is much colder there than at Rome, notwithstanding its latitude.'

To give one an idea of the vicissitudes of temperature, we give the following graphic sketch, from the pen of a well known writer and medical auhtority, namely, Dr. James Johnson.* 'If a stranger were to arrive at Naples by sea, and that for the first time, in the month of November or December, he would be left to form a very erroneous idea of the climate, according to the point from which the wind blew. If it came from the south, he would be inclined to think that there was little difference between Naples and the black hole of Calcutta. If from the north-east, he would begin to doubt whether he had not sailed in a wrong direction, and made the Gulf of Finland, instead of the Gulf of Salerno. If a gentle north-west zephyr skimmed the surface of the deep, and wooed the shores of Baiæ, he might be tempted to think that he had got into the gardens of the Hesperides, or the isles of Atlantis, so green is the vege-

* *Change of Air*, p. 201.

tation, so balmy the air, so mellow the sunbeams, and so azure the skies.'

We shall make one more quotation, from a work recently published by Dr. James Bright, being a Review of the several climates recommended in diseases of the chest and air-passages. Speaking of Naples, he says, p. 250, 'The Sirocco, 'Auster's sultry blast,' is not an unfrequent visitant, and produces the most terrible nervous depression and muscular languor. This may be followed by the Tramontana, an intensely cold north-east wind, which comes down from the Apennines, and carries an icy chillness to the very inmost recesses of the frame, highly prejudicial to the invalid previously enervated by the relaxing heat of the Sirocco.

'The following extracts from Mr. Matthews' 'Diary,' are conclusive as to the treacherous nature of the Neapolitan climate. Mr. Matthews, being himself in delicate health, could write feelingly on the subject.

''February 11th.—The weather is beautiful, and as warm as a June day in England. We sit at breakfast without a fire, on a marble floor, with the casements open, enjoying the mild breeze.

''February 12th.—O this land of Zephyrs! Yesterday was as warm as July; to-day we are shivering with a black easterly wind, and *an English black frost.* Naples is one of the worst climates in Europe for complaints of the chest. Whatever we may think of sea air in England, the effect is very different here. The sea-breeze in Devonshire is mild and soft, here it is keen and piercing.

''March 14th.—If a man be tired of the slow, lingering progress of consumption, let him repair to Naples, and

the *denoûement* will be much more rapid. The Sirocco wind, which has been blowing six days, continues with the same violence.'

'In the same month and in the same page we find the following startling announcement.

''Seized with an acute pain in my side. Decided pleurisy; summoned an English surgeon: high fever, copious bleeding. Owe my life, under Heaven, to the lancet. I find pleurisy is the endemic of Naples.''

Under all these circumstances, it is not surprising that the rate of mortality should be so very high in a climate so wearing to the powers of life.

In Naples, one dies in every twenty-eight.

In Pau, one dies in every forty-five.

CHAPTER XVI.

SHORT SKETCH OF THE GENERAL CHARACTERS AND GEOLOGICAL PHYSIOGNOMY OF THE PYRENEAN MOUNTAINS.

BEFORE entering into a description of the mineral waters, which derive their sources from different parts of the great Pyrenean chain, we shall give a short sketch of the general characters and geological physiognomy of the Pyrenees themselves.

These form a chain of rocks continuing without any interruption from the ocean to the Mediterranean, and are the most considerable in Europe after the Alps. Their situation is between 42° and 44° of north latitude, and between 50′ of east longitude, and 3° 5′ of west longitude, of the meridian of Paris.

At first view we might suppose that the Pyrenees form a chain absolutely isolated, since their two extremities abut upon the Mediteranean and Atlantic seas; but on casting our eyes on the maps of France and Spain, we readily perceive that the Pyrenees are only part of a system of mountains of those countries, since they are prolonged towards the west to Cape Ortegal in Gallicia, and appear to connect themselves on the east with the chain of the Alps by the Montagne Noire and the Cevennes. The Pyrenees form the natural limits between France and Spain, the point where the waters divide on the southern and northern aspect of the great chain regulating the boundary between the two nations.

Their length is about eighty-five leagues, and their mean breadth twenty leagues, occupying a surface of 1198 square leagues.

The new territorial division of France comprehends the Pyrenees in six departments, viz.: those of Pyrénées Orientales, l'Ande, l'Arriège, la Haute Garonne, les Hautes Pyrénées, and les Basses Pyrénées.

Before the revolution, the Pyrenees were divided into several countries or districts, included in different provinces. It is certain, that in remote antiquity these countries were inhabited by races whose origin, manners, physiognomy, and character, differed still more than their language. The *Roussillon* formed an independent province, comprehending the Vallspir, the Confflent, the Capsir, the French Cerdagne, and extending to Puycerda, where the Spanish Cerdagne commenced. After this, the *Donnezan*, a small country which nevertheless had its sovereign counts, and preserved intact its privileges and singular usages: the *county of Foix*, so long governed by the princes of that sovereign house, had retained, under the kings of France, its own independent form of government: the *Couzerans* and the *Comminges* had also been governed by their counts: the *Four Valleys*, whose form of government was democratic: the Bigorrese, with their deliberative states: and lastly, Navarre, which, under the appellation of a kingdom, comprehended Bearn and the Basque country, the latter containing a population the most extraordinary as to their language and manners of all the inhabitants of the Pyrenees.

The Spanish provinces, which correspond to the French departments, are, commencing on the east,

Catalonia, the neutral territory of Andorre, Arragon, Haute Navarre, and Guipuscoa.

The direction of the Pyrenees, as has been said, is from the east-south-east to west-north-west, making an angle of 112° with the meridian. Nevertheless, although this indication be exact in itself, we should convey an erroneous impression of the Pyrenees, were we to say that the chain followed *one* line and that a *straight* one. On the contrary, it is composed of two parts and of two lines, which have, it is true, parallel directions, but which are not prolongations the one of the other. It forms in the middle of its length an elbow; and its western part retires about fifteen miles more to the south, and then follows the same direction with the eastern part. We there observe a great number of smaller lateral chains, which detach themselves from the central one, towards the south and north, in directions more or less perpendicular, and which terminate either in the level ground, which bounds the mountains, or else go to form the boundaries of valleys. We meet also with certain smaller chains, whose direction is parallel with that of the central one, and which are distinguished not only by their direction but by their structure.

The slope of the mountains, to the north, is more gentle and undulating than that to the south; and the declination of the Pyrenees, in their whole length, is more abrupt to the east than to the west. The great valleys are transversal; the longitudinal or parallel ones being of little extent; while the entrance of the valleys, from the plain, are sometimes wide, sometimes narrow. Those which abut upon others are always more or less contracted at their entrance. The valleys present a succession

of basins, and narrow gorges; and in the high regions, those basins are abruptly elevated the one above the other; so that the valleys, instead of presenting uniform declivities, form terraces, and ascend by tiers towards the summits of the mountains. We find in a great number of those basins one or more lakes, and those in which we do not find any, show traces to lead us to presume, that they also have served, at a more remote period, to hold larger collections of water. The convergence of two or more valleys always terminates in one of those basins, and its extent is proportioned to the number and size of the gorges which open upon it. The mountains which form the boundary of a valley present rarely an uniform slope, from the base to the summit; but they are interrupted, frequently, by terraces and rugged irregularities, which often correspond with those of the opposite side. The gorges and lateral valleys are sometimes so elevated above those on which they open, that the torrents are precipitated in cascades.

In place of a narrow and steep gorge, or of a succession of basins, which ascend by stages to the summits of the mountains, several valleys present from their origin one large basin, in form of an amphitheatre, such as the famed Cirque de Gavarnie, at the rise of the valley of Barrèges. We find on the northern slope of the mountains twenty-nine principal or traversing valleys, which all take their origin from the summit of the central chain; the number of those on the southern is twenty-eight. The waters which descend by the southern declination all fall into the Ebro, and those of the north run partly into the Mediterranean and the ocean. The water of the rivers and torrents proceeds

chiefly from sources; that furnished by the melting of the glaciers is trifling, except at the commencement of summer.

The Pyrenean chain does not present an equal elevation throughout its whole length. From its rise in the Mediterranean to the Port de Pertus, its mean height is about 1,800 feet. It then commences to rise considerably; and from the mountains which are at the bottom of the valley of La Teta to those of the valley of Vicdessos, the mean height is about 6,600 feet. From this place to the valley of the Garonne, its mean elevation is 7,200 feet. Here the chain sinks a little, in diverging to the south; but at the Port d'Espot, where it resumes its original direction, it ascends anew, and shortly after, at the Port de Viella, commences the most elevated portion of the Pyrenees, which extends to the mountains situated at the extremity of the valley d'Ossau in the Basses Pyrénées, thirty miles from Pau. Its mean height is here about 7,800 feet. From these mountains in the valley d'Ossau, the Pyrenees insensibly diminish in elevation, and terminate in a point which juts into the ocean and forms the promontory of Fontarabia.

There are several glaciers to be met with in the Pyrenees, of which the principal are:—1. the Maladetta; 2. Crabioules; 3. Mont Perdu; 4. Brèche de Roland; 5. Vignemale; 6. Néouvielle. These are chiefly visible on the northern declivities of the most elevated mountains, where they form isolated masses, but do not descend into the valleys. The limit of perpetual snow, according to the observations of M. Ramond, who made the ascent of Mont Perdu, is 7,500 feet above the level of the sea. The climate is, in general, mild in the Pyrenees. It is hotter at the two extremities of the chain than in the

countries situated in the centre, the eastern extremity possessing the highest temperature, occasioned by its being nearly a degree more to the south than the western. The vegetation is very luxuriant in the mountains, particularly in the basins situated near the base of the chain; and the *pics*, of secondary elevation, are covered with the black pine to their summits, giving to them a more clothed appearance than the same class of mountains in the Alps display.

The mountaineers give the name of *port* to the opening or depression on the crest of the mountains which divides two valleys, and which affords a passage from one to the other. The greatest number of these *ports* are placed at very considerable elevations, possessing in their neighbourhood the shelter of a rocky *hospice*, the value of which, as a place of refuge, would be fully appreciated by any one overtaken in a storm on those inhospitable heights. The dangers which there menace the traveller are felt to be so great, as to give rise to the proverb—'Là, le père n'attend pas son fils, et le fils n'attend pas son père.'

The following is the height of the principal mountains, ascertained by Reboul and Vidal:—the Maladetta, 10,600 feet; Mont Perdu, 10,570 feet; Vignemale, 10,300 feet; Sommet Cylindrique, 10,200 feet; Pic Long, 10,000 feet; Tour de Marboré, 9,800 feet; Néouvielle, 9,800 feet; Brèche de Roland, 9,400 feet; Pic de Midi de Bigorre, 9,036 feet; Pic d'Arbezon, 8,880 feet; Pic Montaigu, 7,314 feet; Pic de Bergons, 6,504 feet.

From the observations made by Saussure and Ramond, the height of the Pyrenean mass is, in general, greater than that of the Alps, although certain *pics* of the latter

exceed those of the former by 3,000 and 4,000 feet; and both have the quality in common, that their northern declination is more gentle, and the southern more abrupt.

According to the opinion of Charpentier, the mineral masses, which compose the framework of the Pyrenees, appear all to belong to the class of rocks commonly designated under the name of *Neptunien.* He asserts that he never found in these mountains volcanic rocks, nor any mineral substance whose properties have been changed by the action of subterranean fires. The *Basalts*, which are so widely diffused over several countries, and whose igneous origin has given rise to so many discussions, are not here met with. Nevertheless, we find extensive depôts of modern *amphibolique* rocks, whose mode of formation is extremely equivocal, and as to whose origin, the present state of geological science does not enable us to decide.

The theory of Ramond is, that the Pyrenees were originally limestone mountains, and that the granite forced itself up in a liquid state. It does not enter into our plan to discuss the merits of the Huttonian and Wernerian theories; although we may say, that there are several circumstances connected with the geology of the Pyrenees that appear irreconcileable with Charpentier's theory. The author, however, desires to steer clear from partisanship on one side or the other.

We find in the chain all the principal formations noticed by geologists, and in the same order of superposition, as in most similar geological circumstances. The primitive structure consists chiefly of granite, micaceous schistus, and primitive limestone. The transition

rocks are principally composed of argillaceous schistus, common grauwacke, schistous grauwacke, and limestone. The secondary formation is red sandstone, Alpine limestone, Jura limestone, and trap, which repose on the primitive in an irregular stratification. The different formations are disposed in bands, which extend from east-south-east to west-north-west, parallel to the principal direction of the Pyrenean chain.

The granitic structure forms a single band, which we may compare to a series of mounts and protuberances, which do not touch except by their bases, and which are often only connected together by rocks of a more recent formation. It does not constitute the chief summits of the Pyrenees, except in a small number of instances, but is removed from them a little to the north. It is more regular in the eastern than in the western part of the Pyrenees. The micaceous schistus forms an irregular band to the north of the granite; but it appears that there has also existed another, situated to the south of that formation.

The primitive limestone forms a single band, placed to the south of the granite, and which extends, with a great deal of regularity, from the valley of the Arriège to that of the Garonne.

The transition formation is the most extensive of the Pyrenees. It forms two great bands, which run along the primitive chain, on the south and on the north. The different rocks which compose it have a like arrangement. The red freestone constitutes also two bands; that on the north of the primitive formation is situated almost at the foot of the Pyrenees, and shows less regularity and less continuity than that which runs along the

primitive formation on the south, and which we find very near to the summit of the chain.

The Alpine limestone is the most common rock of the secondary formation of these mountains, and forms equally two bands. The southern occupies almost all the southern declivity of the Pyrenees, while that which is to the north constitutes only the smaller mountains at the foot of the chain. The Jura limestone is very little prevalent, and appears to be confounded with the Alpine. It is found chiefly at the northern base of the eastern part of the Pyrenees. The secondary trap does not form bands, as the other rocks, but small mountains and isolated masses, placed commonly at the entrance of valleys.

The direction of the strata of rocks is, in general, from the east-south-east to the west-north-west, parallel to that of the chain. It is the primitive chain which has determined the direction of the rocks, and their inclination has been equally determined by the slope of the granitic chain. The dip of the strata is commonly above 45°.

We observe frequently great distortion of the strata in all the formations; but chiefly in that of transition. The different accompanying circumstances would lead us to presume that they had presented these irregular forms since their origin. The arrangement of the rocks seems to indicate two great revolutions which the chain of mountains had undergone before the formation of the valleys. The first appears to have taken place before the existence of the transition formation, and to have destroyed a great part of the primitive structure by furrowing the chain and by reducing it into a series of

protuberances. The second great revolution may have taken place after the existence of the secondary formation; and a considerable lowering of the summits of the chain, and of the northern declivity, may have been the consequence.

CHAPTER XVII.

SHORT REVIEW OF THE ANCIENT HISTORY OF MINERAL WATERS. —THE MINERAL WATERS OF THE PYRENEES.— DIVISION INTO THREE CLASSES—SALINE, FERRUGINOUS, AND SULPHUROUS.— MINERAL WATERS TREATED OF, AND WATERING-PLACES DESCRIBED, IN THIS WORK.— THE GEOLOGIC FORMATIONS WHENCE SPRING THE DIFFERENT MINERAL SOURCES.— THEIR THERMAL TEMPERATURE.— CONJECTURES AS TO ITS CAUSE..

IN the earliest ages, before science had commenced its successful inroads into the secret recesses of nature, and philosophy had, from a crowded store of facts, learned to deduce general principles, to guide man in his groping search after remedies for the relief of the maladies incident to his condition, the utility of mineral waters had been felt and acknowledged, and their virtues, believed to have been graciously bestowed and especially watched over by heaven, were resorted to, as a solace and cure for every description of mortal injury and ailment. Thus success alone, and not any bolstering up by analysis or theory, first laid the foundation of a fame, which in many cases, even the lapse of time, an unerring test, has not succeeded in destroying.

The Greeks, whose knowledge of medicine, as of all liberal arts and sciences, surpassed that of the nations who preceded them, held the warm springs in high veneration, regarding them as a special gift of the Divinity, and dedicated them to Hercules, the God of strength.

These springs were in use among this nation, both as an internal and external remedy, and that they should

have been brought to bear as powerful auxiliaries against disease, is not surprising in a country and an epoch which gave birth to two such luminaries in medicine,—Aretæus and Hippocrates. In the works of the latter, we have distinct mention made of hot springs impregnated with metallic and saline substances, the use of which, however, as an internal remedy, was interdicted. Aristotle, four hundred years before the Christian era, pointed out that certain mineral waters derived their chief properties from certain vapours or gases that were mixed up with them. Strabo describes a miraculous spring, to which he attributest he property of dissolving stone in the bladder. Archigenes recommends the internal use of mineral waters in disease of the bladder, in a dose of from one to twelve pints. We read of several Greek physicians, who employed mineral waters as a remedy against elephantiasis, colic, paralysis, and different nervous diseases, and we find that, at this early period, divers fountains, sulphurous, aluminous, bituminous, nitrous and ferruginous, were known and remarked upon. Galen indulges in praise of a bituminous and ferruginous spring, serviceable to those suffering from gravel; but forbids it as a remedy for persons of particular temperaments.

The mineral waters were a remedy familiar to the Romans, who were in the habit of taking those of Italy; the Emperor Augustus himself being indebted to an Italian spring, for the cure of a pulmonary catarrh, complicated with dropsy of the legs, and Horace thus boasted of the baths of S. Cassiano:—

> Qui caput et stomachum supponere fontibus audent
> Clusinis.

Vitruvius, equally a student of natural history and architecture, describes the nitrous waters as purgative; but Seneca the philosopher is more communicative. He declares some to be good for the eyes, others as having the power to cure inveterate maladies and ulcerations, and as internal remedies, some remove diseases of the lungs and bowels, and arrest hæmorrhage. Pliny, in his *Natural History,* speaks of waters, acidulous, sulphurous, saltish, nitrous, aluminous, ferruginous, and bituminous. He says that the sulphurous waters are very good for the nerves; and that the aluminous are most beneficial in paralysis. Oribasius who lived under the Emperor Julian, praised very much the natural mineral waters in affections of the stomach and liver. Aëtius, born in 405 A.D., appears to have had a clearer view of the virtues of mineral waters. He prescribes the sulphurous and aluminous waters in nervous and rheumatismal diseases, and above all in the cure of leprosy, itch, and other eruptive disorders, and lauds the ferruginous waters in chronic diseases of the liver and stomach.

Wherever the Romans carried their victorious arms, they sought out the mineral waters and took up their abode in the neighbourhood of hot springs, without doubt, because they had had experience of their healing powers in wounds and injuries received in war. In gratitude for the benefits received, they erected temples and votive altars to the divinities, whom they had named as the protectors of those springs. Many are the evidences still existing of the respect in which the Romans, at their earliest conquest of Aquitania, under Julius Cæsar, held the mineral waters of the Pyrenees; and when we come to speak of Bagnères de Bigorre, we shall have an

opportunity of pointing out several of these remains still in comparative preservation.

In the tenth century, when the science of medicine found shelter among the Arabs, mineral waters were held in repute. Avicenna recommends them in visceral obstructions and divers internal maladies.

After the fall of the Roman empire, the mineral sources of France remained neglected until the reign of Charlemagne. Convinced of their utility, that monarch caused a vast bath to be constructed at Aix-la-Chapelle, where he and his officers were in the habit of bathing. The other mineral springs began to be frequented, when his death and the division of his territories plunged France anew into ignorance and barbarism.

Bath is indebted for its thermal establishments, now so universally known, to the Saxons, who gave it the name of Akemanceastre, or city of the sick, which leads one to think that the English were in the habit of frequenting that town for purposes of health even in those distant days, although, it was only during the reign of Charles II. that its reputation really commenced.

It was not till the end of the fifteenth century that physicians paid much attention to mineral waters; and the Italians were the first to revive their ancient celebrity. In 1498, Savonarola of Padua composed a treatise on baths in general, and on the thermal waters of Italy particularly, and investigated the cause of the temperature of those waters, as well as the properties of the sulphur, alum, nitre, chalk and iron, which entered into their composition.

Henry Quatre, who during his youth had much frequented the Pyrenees, and who had witnessed the abuses

which prevailed, attempted, on his mounting the throne of France, to check them, and issued in 1603 certain edicts and letters-patent, naming superintendents and intendants-general, who were charged with the minute surveillance of the waters, baths, and mineral fountains of the kingdom. These edicts were confirmed by subsequent monarchs; and at the present day, at each watering-place, there is a medical inspector appointed by the government, to one of the departments of which he is bound to make annual reports, as to the state of the watering-place under his charge, and as to the therapeutic action of the waters on disease. During the seventeenth century, the study of mineral waters became fashionable in France. At a later period, Fagan, the physician of Louis XIV., examined with care the waters of the Eaux-Bonnes and Barrèges, to discover if they would be a proper remedy in the cure of a *fistula in ano*, from which Louis suffered. Already the waters of Barrèges, Cauterets, and Bagnères, attracted a great number of invalids. In some provinces, certain fountains were placed under the protection of saints, and at a fixed period of the year, the people made pilgrimages to implore the aid of heaven in their favour. Nearer to our own times, physicians in different countries spoke with enthusiasm of the mineral waters of their districts. Conrad Gesner eulogised the thermal waters of Switzerland; Hoffman, those of Germany; Allen and Lyster celebrated the waters of Bath and Buxton, while Boyle sketched a treatise on mineral waters.*

Since that period, the most illustrious names in the

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* *Manuel des Eaux Minérales*, par le Docteur Patissier.

French galaxy of science have been mixed up with the numerous researches, chemical and medical, which have taken place from time to time, to elucidate the composition and virtues of the French mineral waters.

The individual history of each Pyrenean watering-place, and the composition and curative virtues of their waters shall be given hereafter. The watering-places which we have selected for description are Bagnères de Bigorre, Capbern, Barrèges, St. Sauveur, Cauterets, Eaux-Bonnes and Eaux-Chaudes; the first possessing a variety of springs, chiefly of a saline, and one of a ferruginous nature; the second a source entirely saline; and the remaining five, many sources of different strengths, highly sulphurous in their properties.

The saline waters of the Pyrenees most usually spring from the schistous limestone, or, as in the majority of instances at Bagnères, from the alluvial deposit. The only ferruginous spring to be noticed in this work, viz., one in the neighbourhood of Bagnères, proceeds from a soil containing very considerable quantities of amphibole and feldspath, while the sulphurous thermal waters well out from the primitive or granitic formations. To this latter geologic circumstance, we scarcely ever find exceptions. We see these waters flowing in the granite, gneiss, micaceous schistus or eurite, while if we pass the limits of these primordial strata, we discover no traces of them.

The temperature of the thermal springs is, without doubt, one of the most surprising, as well as obscure phenomena of our globe, and many hypotheses have been proposed as a solution of the difficulty. The temperature of these springs, always under that of boiling

water, has yet remained nearly the same for ages. Some springs, occasionally, show an appearance of ebullition; but this occurs principally during storms, and is produced by the disengagement of nitrogen and carbonic acid gas, from an altered state of the atmospheric pressure.

The following are some of the hypotheses, which have been, from time to time, promulgated; but we are bound to confess that none of them meet all the difficulties of the mystery.

1.—The calorific cause has been supposed to arise from certain inextinguishable fires, which diffuse heat to great distances in the bowels of the earth; the volcanic fuel of these fires being the carbon, produced by the insensible combustion and slow decomposition of ages, of the forests which formerly covered the surface of the mountains of the first order,—forests which had been embedded under the immense ruins of a general *bouleversement* of the world. From the decomposition of these forests and other organic bodies, buried under the ruins, were supposed to arise the carbon, bitumen, vegetable salts, sulphur, gases of all kinds, in a word, the volatile and fixed principles which the experiments of chemists discover in these mineral waters. The objection to this theory is, that there are no marks of any internal volcanic action, which must undoubtedly have taken place on this supposition. 2.—According to some, the cause of heat arises from the mineral acids quitting their primitive bases to assume new forms; the results of which decomposition and synthesis, being the salts found on evaporation, and the caloric engendered by the transfer; but if the heat were the result of

decomposition and new combinations of mineral substances in the earth, we should not always have the same temperature and the same proportions of principles present, which, however, we find unvarying in the same waters at all times. 3.—Struck with the influence of the electric fluid, whose powers are found to be so universally diffused, theorists have called in its aid, as affording a solution of thermal heat. This cause, however, appears too mobile, and subject to too many and eccentric variations, to explain an effect so constant, as the temperature of mineral waters. 4.—Another opinion, which was that of Sir Humphry Davy, attributed the thermal heat to the reactions caused by the rapid decomposition which metals still inoxidated produce on water at the moment of contact; by which process much caloric is disengaged, and the principles, in dissolution in mineral waters, are produced. 5.—Several metallic substances mineralized with sulphur, such as iron pyrites, in a state of pulverization, give out caloric on the contact of water; it has therefore been presumed that the heat of mineral springs may be traced to this cause. However, it may be answered, that the sources of highest temperature are those in which we do not find iron or any metallic substance. 6.—Central fire has been, in all ages, believed in, and has been claimed with considerable confidence in our own time, and with great plausibility, as the source of thermal heat.

A work by M. Cordier,* published in 1827, has forcibly drawn public attention to this subject. From experiments made by this learned Academician, it

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* *Essai sur la Température de l'Intérieur de la Terre.*

appears, that in penetrating from the circumference towards the centre of the globe, an increasing temperature is experienced of nearly two degrees for every forty yards of depth. If this be approximatively correct, (and the results of the experiments at the Observatory of Paris, as those of the Artesian well lately sunk near Paris, support M. Cordier's calculation), he estimates that a heat equal to that of boiling water, would be found at a depth of about half a league from the surface of the soil, a distance considerably less than that of the height of many mountains. If we suppose this increasing temperature to be regular, there would be an elevation of 500,000 degrees at the centre of the globe, an amount of heat strong enough to melt and dissolve the most refractory substances in nature or in imagination.

M. Arago,* from a multitude of facts and observations, has established this principle, that there exist at various depths, in the body of the globe, veins and sheets of water more or less considerable; these waters, by their gravitation, finding their way towards the centre through various fissures, from the mutual retraction of strata. Being volatilized by the absorption of caloric from the central source, they ascend in vapour and carry with them in their upward course the component principles of mineral springs.

However plausible, and whatever amount of truth there may be in this, there is still something wanting here, as in all the other hypotheses. It is the stubborn and unvarying point of temperature of the thermal waters at their source, and the constant relative proportion of

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* *Annuaire du Bureau des Longitudes*, 1835.

their ingredients, for which none of the theories fully account. Human science has done much to elucidate nature's operations; but she has her mysteries, and these mysteries are for the present veiled from finite vision.

If, however, we cannot fathom the secret, it is at least an interesting occupation to penetrate as far as may be permitted, into the temple, which contains that secret. In the next chapter, therefore, we shall bring before our readers matters of more tangible import.

CHAPTER XVIII.

GENERAL CONSIDERATIONS CONNECTED WITH THE SULPHUROUS WATERS OF THE PYRENEES.—BARREGINE, OR GLAIRINE, A SUBSTANCE FOUND IN THESE WATERS, AND PECULIAR TO THEM.—GENERAL ANALYSIS.— CHEMICAL ANALYSIS FAILING TO SOLVE THEIR THERAPEUTIC ACTION ON THE HUMAN FRAME.—OPINIONS OF CARMICHAEL, GRANVILLE, JOHNSON, HEIM, CHAPTAL, AND VAUQUELIN.—MEDICAL PROPERTIES OF THESE WATERS, IN HEALTH AND IN DISEASE.

IN this chapter, we shall direct our attention exclusively to the subjects of the sulphurous waters of the Pyrenees, because they are those on which the reputation of the mineral springs of this country depend, and for the use of which a large majority of persons resort to this part of France. The general and special qualities of the saline and ferruginous springs, and their therapeutic influence on the human frame in disease, will be fully detailed in the chapters on Bagnères de Bigorre and Capbern, where those sources are chiefly to be found. This plan of treating the subject leaves the ground less embarrassed in discussing the important question of the therapeutic action of the sulphurous waters in different pathologic conditions of the body, and in deducing some fixed rules, as to when they may, with a great degree of certainty, be depended on, when they alleviate, or when they aggravate disease. This, after all, is the chief point to be considered; and one, if satisfactorily discussed, which ought to constitute the chief value of that part of this work, which treats of the mineral waters of the Pyrenees;

since so little discriminative attention had been paid to this subject in the proper quarter, as to have drawn down at different periods, on the inspectors of the mineral sources, rebukes from the Commission of the Royal Academy of Medicine at Paris, appointed by the Government to receive and report upon the annual returns of these functionaries; for persons with every kind of disease, in every variety of temperament, might, as in a lottery, stake his case upon the result of a doubtful and often direful hazard.

The sulphurous mineral waters derive their name from the sulphuretted hydrogen gas and the hydro-sulphate of soda which they contain. Their odour is more or less fetid, resembling the smell of rotten eggs; and they contain, with some other saline principles, in varying quantities, an organic substance, whether of an animal or vegetable character has not yet been clearly decided, called barrègine or glairine. Like animal matter, it gives out an ammoniacal odour on burning; but late microscopic observations claim it as a vegetable production. It has a mucous appearance, is smooth to the touch, and is met with in different forms; sometimes it is fibrous, flocculent, compact, or membranous; and its colour also varies, being white, brown, green, or red. It is found in abundance in many of the Pyrenean sulphurous waters of strongest medicinal powers, and their unctuous properties are supposed to be owing to its presence. It is believed, also, that the glairine communicates some unique powers to the waters, in the cure of muscular rigidity, tendinous contractions, and chronic rheumatic affections of the joints. It may be remarked, that the sulphurous springs of Germany do not contain this substance.

The sulphurous waters of the Pyrenees, though abounding in gaseous principles, contain only a very small quantity of fixed matter; for those which possess them even in greatest quantity, leave, after evaporation, a residuum only the three thousand four hundredth part of the water evaporated. Indeed, analysis does not at all suffice to give an explanation of the powerful effects of these waters on the human frame, there being many to be met with, Capbern among the number, showing few tangible results to the chemist, yet exercising energetic influence on disease; an admission which we give the homœopathists the full benefit of.

We cannot resist strengthening our assertions on this point by the opinions of well-known authorities. In the first place we give a statement of his own case, and of the influence of the saline waters of Bagnères de Bigorre in severe dyspepsia, complicated with neuralgia, from which the late Mr. Richard Carmichael, a celebrated surgical authority, of Dublin, suffered severely, and which had hitherto resisted the efforts of the first physicians of Ireland. He thus states the effects produced on him by the Source Laserre, one of the fountains of Bagnères de Bigorre. Notwithstanding the small proportion of saline ingredients contained in these waters (71 grains to 25 quarts), and although they were not of an active nature, he found a marked and almost immediate amelioration. His appetite returned, the tongue became clean, the bowels became regular, the renal secretion, which had been always troubled and loaded with a thick chalky sediment, resumed its clearness and the amber colour of health, and was considerably increased. His neuralgic affection obliged him, but at rare intervals,

to have recourse to the soothing influence of opium, and he had the satisfaction to enjoy each night a salutary sleep. One ought, therefore, to attribute the virtues of these waters, he says, not merely to their temperature, but also to some unknown state of combination of the principles which they contain. In any case, that one cannot calculate the action of these waters by the quantity or quality of their mineral elements, the Source of the Laserre, at Bagnères de Bigorre is a sufficient proof.*

Dr. Johnson, in his work on the German Spas, says also on this subject, that when we see waters so simple that they differ but little in appearance from springs the most pure, produce medical effects, we must attribute the cause to some mysterious power, not cognisable by our senses, and which human art does not know how to imitate.

Professor Heim adopts the same hypothesis with Dr. Granville, in his work on the mineral waters of Germany. He thinks that the heat of thermal waters is of a specific nature, analogous to that of the vital heat in the human body. 'It is,' says he, 'a heat incorporated with the water by a chemico-vital action; and as external heat cannot supply the vital heat of the body, so a temperature, artificially created, cannot replace the natural warmth of mineral sources.'

Chaptal declared, that in experimenting in the laboratory on mineral waters, with a view to discover their

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* *Observations on Sciatica and other Neuralgic Affections, with an Account of the Waters of Bagnères de Bigorre in their Treatment;* read before the Royal College of Physicians, by RICHARD CARMICHAEL, M.R.I.A., p. 29.

properties, it is the dead body of these waters alone that we operate on, the subtle principle, which gave to the chemical ingredients a vitality, having fled. It was Vauquelin's opinion, also, that the remarkable effects which we see produced by waters, in which analysis finds little or nothing of activity in the ingredients, prove that there exist in nature many principles so subtle, as to be entirely withdrawn from our limited means of investigation, and whose existence can only be conjectured, as in the matter under consideration, from the effects produced being totally different from those which waters artificially formed of the known and tangible ingredients of true mineral springs would display.

To aid the theorist in his endeavours to account for the effects produced on the human system, so different from those which the known ingredients, without some other aid, would evince, recourse has been had to a principle which has been designated thermo-electric,—a principle wedded most intimately to, if not constituting, the hypothetical matter of thermal caloric. Those who have had experience of the medicinal operation of hot springs, must be convinced that the waters enjoy at their source a species of fugitive vitality, which transport and cooling rob them of. It is clear, therefore, that these mineral waters cannot be successfully imitated; and that it is necessary, in order to insure their beneficial effects, that they should be taken at the source.

The direct action of these waters, taken internally and applied externally, in the form of bath or douche, is exciting to a person in a robust and sanguine condition of health. In such a case, if the treatment be

indefinitely continued, all those symptoms of fever, which are usually engendered by causes which excite the nervous and circulating systems, manifest themselves: the sleep is troubled and agitated by disagreeable dreams, the sensibility of hearing and of sight is increased, the pulse becomes accelerated, the head painful, the thirst burning with derangement of the stomach, the skin is hot and dry; there are sometimes involuntary muscular movements, and occasionally hæmorrhage from the lungs; and even fatal apoplexy has sometimes been the result of an incautious use of these sulphurous waters.*

This untoward state of symptoms, arising from an improper or immoderate use of these waters, has been called the *point of saturation*, or, according to the German school, the '*Bad Sturm*.' These results sufficiently demonstrate that these mineral agents are not inoffensive in every condition of the animal economy; but that, on the contrary, they ought to be recommended with judgment, and taken with proper precautions.

In cases where the temperament of the invalid, and the disease under which he suffers, are suitable to the therapeutic action of these waters, we find that they are often productive of beneficial results, such, for instance, as a modification of the functions of mucous membranes. Thus they tend to give tone and organic vigour to membranes debilitated by disease, or natural delicacy of constitution, and change the quality and quantity of their secretions. The influence of treatment by these means is also felt by the absorbent vessels. Morbid deposits in the neighbourhood of joints, and between

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* *Manuel des Eaux Minérales*, par PATISSIER.

muscles and tendons—the result of injury, or of gouty and rheumatic inflammations—are often absorbed with surprising rapidity; and passive congestions, arising from irregular circulation in the glands, are frequently dissipated by the activity which these waters impress on the nervous and circulating systems.

The waters are taken, internally and externally, in baths and douches. The waters being stimulant, it is necessary, even in cases where the symptoms of disease indicate their use, that the dose should at first be small, and cautiously administered. It is customary to commence a course with a dose of half a tumbler, mixed with one-third of the quantity of tepid milk. Under medical surveillance, this may be gradually increased, until the maximum is reached, say three or four tumblers a day, should no opposing symptoms intervene, suggestive of a diminished dose or temporary intermission. It is usual for the invalid not to commence the baths for some time, until his system shall have become accustomed to the stimulus of the waters. The baths, in reference to their strength and temperature, should not be taken, except under medical surveillance; as many shades of symptoms depending on the disease, or called into action by the treatment, require appropriate changes in the qualities of the baths. The baths and douche are often associated with the internal use of the waters; and thus combined, they often produce very surprising effects. The douche is a column of mineral water, which is directed with considerable *vis a tergo* upon some one part of the body. There are three kinds of douches: when the column of water is directed vertically on any part, it is called *descending;* if the column of water is

directed horizontally, it has the name *lateral;* and from below upwards, *ascending.*

As to the mode of action of the thermal waters on our internal organs there is still considerable obscurity. We only know that they stimulate visceral circulation, with a force proportioned to their temperature and composition; that they penetrate the circulating fluid itself, to which they give a centrifugal impetus, and influence, at the same time, the different secretions. In baths, the mode of action of the thermal waters is more easy of appreciation; in this form they purify the skin, re-establish perspiration, and operate a revulsion from the centre to the circumference. The cutaneous apparatus becomes red, injected, tumefied, acquires increased temperature, and a refreshing moisture, and is the seat of moderate sanguineous congestion over its whole surface, often beneficial, and always exempt from danger. It is easy to imagine the influence this stimulation of the skin, and new impulse given to the circulation, must have in restoring to the surface different cutaneous affections which had retreated into the interior; in re-establishing habitual evacuations, devious, diminished or suppressed; in developing venereal maladies, masked or imperfectly cured, and, indeed, in all internal diseased actions depending on metastasis of eruptive disorders, such as itch; of rheumatism, and of venereal virus; on diminution or suppression of perspiration, of the menses, or of hæmorrhoids. The thermal waters, in the form of baths are not less salutary in rheumatismal affections, lumbago, sciatica, paralysis, scrofula, and against the host of cutaneous eruptions, which depend on irregularities of the perspiring organ, or an abnormal excretion from the

skin. Their unctuosity succeeds perfectly in rendering tendinous and ligamentous parts more supple, and in giving greater freedom of motion to limbs, which had suffered from contusions, sprains, and fractures, and accelerates the healing of gun-shot wounds, and atonic and fistulous ulcers. These waters, also, taken internally, and applied externally, promote in a peculiar manner the exfoliation of diseased bones, and the working of foreign bodies, or deep-seated abcesses, to the surface.

The douche increases the vital action of the part on which it strikes; it inflames the skin; covers it with small pustules, which would become blisters were the action of long duration. The douche ought not to be continued above a quarter of an hour, if it be received on one point. Continued for a lengthened period, in place of producing a moderate and healthy excitation, it would certainly produce serious inflammation. Douches violently applied to the head, vertebral column and abdomen, produce, occasionally, inflammation of the membranes of the brain and of the spinal marrow, colics and vomiting. Administered with precaution, the douche is one of the most energetic means which art possesses against a multitude of local ailments. It is a sudorific more powerful than the baths. The percussion and shock which it occasions diffuse themselves into the penetralia of the tissues, change their mode of vitality, and arouse an activity which, transmitted to the internal organs, if free from inflammatory complications, creates in them salutary reactions. On whatever point one wishes to stimulate vital action, or cause a chronic inflammation to pass into the condition of acute, we may mostly depend on producing this effect by bringing the douche to strike on this point.

Recourse is, therefore, had to the douche with success, in cases of atony and partial relaxation, in incomplete anchylosis, contractions of the limbs, cramp, stiffness of the joints, chronic rheumatisms, sciatica, lumbago, local loss of power, and paralysis, indolent tumours, white swellings, without inflammatory complication, circumscribed and obstinate ringworm, etc. In paralysis of the limbs, the douche is used to the spine. Directed to the loins, the lower part of the abdomen, thighs, and perinæum, the douche is a most powerful means of re-establishing the menstrual and hæmorrhoidal flux. Applied with discretion to the abdomen, it is very useful in chronic engorgements of the viscera contained in that cavity.

The mineral baths often produce an eruption (*psydracia thermalis*) which very much resembles scarlatina, miliary or other cutaneous diseases. This eruption, determined by a salutary effort of nature, produces a most useful derivative effect. It is often the precursor of the re-establishment of health, of which the works of the medical inspectors furnish many examples. The cure of chronic pulmonary catarrhs, of gastralgia and enteritis, is often preceded by pimples, blotches, pustules, articular swellings, and tetters, of the germs of which the invalids were little conscious that they were the bearers. These eruptions, far from being dangerous, ought to be regarded as a beneficial result of the waters. They speedily disappear even during the use of the baths; but should there remain any isolated pimples or irritation of the skin, after the termination of the treatment, we recommend the invalids to leave them undisturbed, as a means of assuring their cure, and preventing a relapse.

CHAPTER XIX.

ENQUIRIES AS TO THE THERAPEUTIC ACTION OF SULPHUROUS MINERAL WATERS ON DISEASE.—THEIR EFFECTS, INDEPENDENT OF THE IMAGINATION, OF FASHION, AND OF CHANGE OF SCENE, AND AIR.—ARGUMENT IN FAVOUR OF THEIR CURATIVE PROPERTIES, DRAWN FROM THEIR INFLUENCE ON 'BROKEN WIND,' IN HORSES.—SOME DETAILS AS TO THIS DISEASED CONDITION IN HORSES, CURED, AND ALLEVIATED, BY THE SULPHUROUS WATERS OF THE PYRENEES.

HAVING thus given, in a general way, the effects of the waters taken internally, and by bath and douche, the inquiry naturally follows, are these effects constant in all states of the human system, and is it desirable and safe, under all circumstances, to produce them? In other words, what are the indications arising from diseased action, which invariably and safely appeal to the curative influence of these mineral agents; and what are they, where the result would not only be doubtful, but highly prejudicial?

This is an important inquiry, and one demanding no little discrimination. It may be supposed that, during the course of some years' experience, of the effects of these sulphurous waters, chiefly at Cauterets, whose numerous springs are almost an epitome of the other sources scattered over the extent of the mountains, and from the opportunities he has had of witnessing their powers in other places, the Author would have accumulated many facts, and have endeavoured to deduce, for his own guidance, some general principles. It was his original intention to have given, in this place, those

views, however imperfect; but he considers that he will be conferring a greater benefit on the professional reader if he here substitutes, instead, the substance of a Report of the Commission of the Royal Academy of Medicine at Paris, a document well worthy of attention.

Since the year 1824, the Royal Academy of Medicine has been charged by the Government to examine the annual documents sent by the physicians, inspectors of the mineral waters of France, with the view of establishing statistical facts, and of founding a philosophic system of therapeutics, as to their administration and action on disease. This commission, consisting of the most able physicians of France, held its first meeting in May, 1824, for its organization; and since that year it has been in the habit of meeting once a month, or whenever its duties have required it, and has, from time to time, issued reports founded on the *data* supplied by the medical inspectors.

To one of these reports, viz., that for the years 1838 and 1839, and read before the Royal Academy, the 14th of August, 1841, it is our design more particularly to direct the attention of the reader. These reports having a limited and private circulation, and not likely to come under the notice of the general reader, we conceive that a benefit will be done to the invalid public by giving the facts and opinions contained in them a wider circulation. When we come to describe the individual watering-places, we shall see the application of the principles here enumerated carried out in detail. We consider, that there cannot be more unimpeachable testimony than that furnished by the reports of this

learned and disinterested commission, as regards the qualities and powers of these sulphurous waters. Their characters, and the absence of every personal consideration which might bias their judgments, afford the strongest guarantee of the value of the evidence; for, as the report* at its outset says, 'Strangers to every local thermal interest, your Commission has not sought to exalt in your opinion such and such a fountain: they have viewed, disinterestedly, the practical science of this mode of cure, and the only aim of their researches has been to reduce, to their just value, the vaunted virtues of the waters, and to furnish to practitioners some positive data to guide them in the choice of a source, according to the characters of the maladies and the temperament of the invalid; happy if, by their feeble aid, they co-operate in the progress of medicinal hydrology, which unfortunately is too little known to the majority of professional men.'

The report commences with a proposition for discussion, viz., 'May we prescribe, without distinction, the different mineral waters for all chronic maladies?' or in other words, 'Is it indifferent whether we direct an invalid to Barrèges, Neris, Vichy, Mont d'Or, etc., whatever may be the nature and cause of the malady?'

When, from a residence at the source of some mineral spring, one has acquired a practical knowledge of the virtues of its waters, and observed the diversity in their mode of action on different individuals, and when it has been remarked that sometimes morbid affections, which

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* *Rapport sur les Eaux Minérales Naturelles fait au nom de la Commission des Eaux Minérales, pour les années* 1838, 1839; *et lu à l' Académie Royale de Médecine, le* 14 *Août*, 1841.

had a long time resisted the usual modes of treatment, yielded to these means, and that occasionally even a dangerous activity is communicated to symptoms which have remained quiescent under usual medical treatment, we find in all this a sufficient answer to the question which had been propounded for discussion by the Royal Academy of Medicine. But persons living at a distance with their minds preoccupied by private theories, are little disposed to accept unusual propositions as truths; and they give themselves up to a scepticism difficult of removal with regard to the virtues of thermal waters.

It will not then be entirely useless to combat at the outset some of the objections which have been raised against the employment of mineral waters in general. A discussion on this point is the more necessary in a work addressed to English physicians, as well as to the public; for an unreasonable opposition against foreign mineral waters and foreign climates has often led them to forbid their use in cases, where a marked amelioration, if not a cure, might have been the result of more enlightened and less prejudiced advice.

On this point, Dr. Granville, the most experienced of spa physicians, says,* 'Examples of this kind have occurred repeatedly in my own experience. They, in fact, occur almost daily. Last year, a patient of consequence, under my care in London, was recommended, on account of a complaint of frequent recurrence, to go to a spa of great celebrity, as the only likely means of strengthening the system and rendering the constitution invulnerable to future attacks. A metropolitan physician,

* *The Spas of Germany*, vol. i. p. 21, Gallignani's Edit.

of the first respectability, who acted in consultation at the time, did not actually deride, but seemed to hold very cheap the alleged efficacy of foreign mineral springs. Upon being questioned as to any practical knowledge he might have of them, he candidly admitted that he possessed none. The recommendation, however, was adopted, and the result has answered every expectation.'

But this indifference to the merits of mineral waters does not exclusively belong to English physicians. It has often been the subject of remark, as well as of astonishment, considering the opportunities at their command, how little acquainted even many leading physicians in Paris have been with this subject. In fact, they seemed to believe that all mineral waters are indifferently suited to all chronic diseases. But this, a French author* has remarked, 'is to declare one of two things, either that the waters are an universal remedy, and that diseases present the same symptoms, the same seat, and the same causes, which is evidently a paradox; or, that the medicine is common to all, that is to say, without intrinsic power, and that its efficacy is owing solely to the journey and to the amusements which it affords.'

But as it cannot be denied that nature presents an infinite variety of principles, elementary as well as compound, which minister to the wants of man in health, and which combat his sufferings in disease; as it is, unfortunately, not necessary to enter into a long dissertation to prove that the evils which afflict humanity are various in their characters, and as it is certain that the beauty of a landscape cannot change vitiated secretions, strengthen

* *Recherches sur l'action thérapeutique des Eaux Minérales*, par LEON MARCHANT, Paris, 1832.

weakened joints, cause the absorption of morbid deposits, or transform unhealthy inflammation into healthy activity; it is necessary to seek elsewhere for a solution of the problem of the action of mineral waters on the system.

It cannot reasonably be doubted, that the natural temperature and the chemical composition of mineral waters communicate special characters and curative principles of an active kind. Experience has clearly proved that thermal water, taken in the same dose and at the same temperature as common water, is lighter, more diffusible, and more easy of digestion than the latter. Neither must it be forgotten, that many of these waters are so active, that they cannot be taken with impunity in cases where they are not indicated by the symptoms, and that persons in health who often take them without precaution, are occasionally seized with inflammation of the mucous membranes, and gastric fever.

One is therefore obliged to acknowledge that the different sources have not only distinct and separate virtues, but also that it is absolutely necessary, in order to obtain satisfactory results, that the symptoms of the malady must be appropriate to the nature of their influence. 'Does not any one see,' says the Report of the Academy, p. 13, 'that nervous diseases, which have resisted long voyages and amusements of every kind, often get better quickly and durably under the influence of the waters of Nervis d'Ussat and St. Sauveur? It is not surely necessary to say that the amusements and *distractions* incident to a watering-place, cannot be considered as a main cause of the amelioration or cure, in the cases of invalids, who take the waters, at a distance from such source. And lastly, horses suffering from chronic affec-

tions of the chest, who each year drink with success the waters of Cautérets, Eaux Bonnes, Bagnères de Luchon, and Mont d'Or, do they not afford the strongest proof of the powerful action which these waters exercise of themselves, independently of extrinsic aids.'

Arrived at this point of our enquiries as to the therapeutic action which the sulphurous waters have in the maladies of the human body, we shall now bring forward as an argument of considerable weight, the influence which they possess in pulmonary affections of horses. We have collected from several sources undeniable proofs of this influence, and we now give some details as to the diseased state of those animals which is usually mitigated or cured by the use of the sulphurous waters.

In thus acting, we shall not only have a good answer to those who turn into derision the efficacy of mineral waters in disease, in shewing them that they are often efficient in cases where the imagination is necessarily inoperative, and where no *distractions* can soothe the patient; but we find also a new proof of their power, in the treatment of diseases of the air-passages and of the substance of the lungs, even in man.

Independently of personal observations on the diseases of horses subjected to the action of the waters of Cauterets and Bonnes, we have been fortunate enough to receive several valuable details on this subject from Mons. Mousis, for a great many years veterinary surgeon to the Departmental Haras, an institution for thoroughbred stallions, kept at the expense of the Government, for the improvement of the breed of horses.

Before proceeding thus to make known the effects of the sulphurous waters, it is necessary to enter into some

details with regard to the nature and seat of the chronic affections of the chest to which horses are most frequently subject. Among these diseases, some, like bronchitis, affect simply the mucous lining of the bronchial tubes, and do not encroach on the essential organs of respiration, while others have their seat in the substance of the lungs themselves; and there are some even which seem to attack all the essential tissues of that organ. We must also mention the affection called *Broken Wind*, which, without being a distinct disease, is rather a group of symptoms belonging to different morbid states, among which may be mentioned chronic bronchitis. The disease which, in almost every case, gives rise to broken wind, is pulmonary emphysema; which is, according to Mons. Delafont, an alteration of the air-cells of the lungs consisting in their enlargement, or in two or more cells being converted into one large one, from injury or disease, and thus containing more air than the lungs can readily disengage themselves of by ordinary expiration.

The first of these affections is frequently cured by the waters of the Eaux Bonnes; viz. that from simple up to chronic bronchitis, which constitutes, very generally, 'broken wind.' In this case, the Eaux Bonnes make the disease pass from the chronic to the acute state, restoring gently, and by slow degrees, the vital properties of the mucous membranes to their natural condition.

There exists in veterinary as in human pathology, an affection of the respiratory apparatus, in which the Eaux Bonnes play an important part as a therapeutic agent; viz. *chronic laryngitis*. The symptoms in horses are often frightful to behold; on the slightest fatigue they assume an acute character, the breathing becomes all at once

very hurried and difficult; on the smallest pressure on the windpipe the cough becomes convulsive, and the animal is often threatened with suffocation; the pulse is sharp and quick; the membranes are violet red; but generally the progress of this affection is slow, and, provided there be no extrinsic complication, it passes to the chronic state, and leaves no other trace than a dry cough and the breathing more or less interrupted. Notwithstanding, the animal may do tolerably good service, unless it be exposed to external causes, which act more or less directly on the weakened part. In this state, the affection may be tedious and obstinate; but it produces rarely, if ever, organic alteration of the larynx.

There is another kind of affection of the chest which attacks even the tissues of the lungs, and which constitutes pneumonia, passing quickly to the chronic state. This condition is sometimes cured by the use of the sulphurous waters, if, at least, the disease has not proceeded to organic alteration of the lung. The Eaux Bonnes, in this case, act as a revulsive, by determining the circulation to the surface of the body and by increasing the different secretions, and thus diminishing the congestion of the affected portion of the lung.

Horses suffering from this diseased state, in general shew the following symptoms: rough staring coat; the movements of the flanks have not that regularity which characterises the healthy state of the respiratory organs, without one, at the same time, being able to say that they are broken winded; redness and inflammation of the lining membranes of the eyes and nostrils; breath very hot; cough dry; râle, sometimes crepitating and cavernous; the existence of tubercles, which are distinguishable

by auscultation, and particularly by percussion when they are large and numerous; there is then a diminution of the respiratory murmur, and a dulness in the anterior region of the lungs where they are most usually developed. This complication renders the cure more difficult, but still, in many cases, the condition we have described is not beyond the curative powers of the sulphurous waters; that is to say, that they modify advantageously the pulmonary tissue, without however acting on the tubercles which are not susceptible of resolution. Sometimes, however, the tubercles are diminished in volume, in becoming hardened and almost inorganic. But the pulmonary tissue in contact with them becomes, to a certain degree, permeable to air, and, in consequence, more or less fit for the functions of respiration; the favourable change is easily perceptible; the breathing becomes less difficult, the chest becomes more sonorous, and this state may, under favourable circumstances, remain stationary, and the animal be capable of good service, without much inconvenience to the functions of the lung.

After these results, produced under circumstances where the force of imagination can be as little reckoned as a cause, as the *distraction* arising from change of scene, of society and air, it seems fair to conclude, that over the maladies of animals of a higher order, of man for instance, these waters ought to exert at least an equal influence.

CHAPTER XX.

DISCUSSION ON THE THERAPEUTIC ACTION OF THE SULPHUROUS MINERAL WATERS CONTINUED.—GENERAL OBSERVATIONS ON THE SYMPTOMS OF DISEASE, INVARIABLY CURED, ALLEVIATED OR AGGRAVATED BY THEIR USE.

NOTWITHSTANDING the scepticism with regard to the medical virtues of the sulphurous waters which we have endeavoured to combat in the preceding chapter, the majority of physicians, enlightened by the numerous and undeniable facts related by exact and trustworthy observers, concede to these waters a medicinal power, independent of all accessory circumstances. They agree, that, used in draught, in bath, and douche, they are always *stimulant*, acting internally and externally, with more or less force; that they are, in a word, *exciting* in different degrees: but they conclude that, with the precaution of graduating the excitement according to pathologic forms, all the springs may be placed on the same level, and indifferently prescribed with the same probabilities of success in all chronic maladies. We might cite many appropriate facts to warn us against this indifference; but we prefer leaving Tissot, whose authority will have more weight than ours, to speak on this subject. 'I saw, in 1777,' says this celebrated physician, 'a lady sent from the north of France to Barrèges, with whom those waters succeeded so badly, that fourteen months elapsed before she could return home.' After citing other cases, he goes on to say: 'We here see how important it is to know exactly

the virtues of mineral waters, and how dangerous it is to consider them as an indifferent remedy, to which one may loosely counsel resort, and of which we often leave the choice to the invalid.'* But the opinion of the class of physicians now under consideration, is unquestionably too absolute. In fact, although organic excitation may be one of the great powers of these waters, still we cannot admit this to be their only mode of action. Is it, for example, to excitation only that we can attribute the efficacy of the waters of Eaux-Bonnes and Cauterets in chronic affections of the respiratory organs? If it were so, all these waters should be suited to the cure of these maladies, because they are stimulant; such a claim, however, is negatived by the very common experience, that these waters do not act, in these cases, as instruments of excitation; but, according to the observations of Bordeu and Bertrand, they succeed in the instances where stimulating remedies had previously aggravated the evil. We are, therefore, forced to acknowledge, that there are several springs which possess virtues altogether peculiar and special, unknown in their nature, and calculable and appreciable only in their effects. In fact, close observers have arrived at the conclusion, that the waters, according to the diversity of their composition, produce specially an impression on such or such an organic system; thus the sulphurous waters act particularly on the lymphatic and tegumentary systems—the saline, more or less laxative, provoke a movement of the digestive canal, while the ferruginous and alkaline waters, more pene-

* *Traité des Nerfs et de leurs Maladies*, p. 231.

trating, modify the humours in a manner more or less appreciable.

Since then, sulphur, carbonic acid, iron, and neutral and alkaline salts, enter into the composition of mineral sources, we cannot see why the waters in which these principles are found, should not possess, at least, the special virtues of these principles. Is it that these substances lose their medicinal properties when they pass through the hands of nature in place of those of the druggist? So far, however, are these ingredients from being deprived of their activity by their union with the waters, that there is every reason to believe that the state of division to which they are reduced, favours much their assimilation and distribution in the different parts of the body. It is certain, for example, that the natural waters of Vichy, which contain a very small quantity of bi-carbonate of soda, are infinitely more easy of digestion by the invalid, and much more salutary in their effects than in the draughts prepared with the same salt: the ferruginous sources, also, which contain minute quantities of iron, cure diseases which have resisted every description of steel medicine; so true it is, that the preparations of nature possess an energy which the mixtures of art can never expect to rival.

Where even a dissimilarity in the chemical and physical properties of the most celebrated sources does not readily indicate the nature of the difference in their medicinal virtues, has not bed-side observation, agreeing with the tradition of ages, arrived at a solution of the difficulty?

It is known, from experience, that some of these waters cure, or alleviate, rheumatism, and others

paralysis; that one class is recommended for pulmonary consumption, and another for visceral obstruction; that here we send persons afflicted with gravel, there, those suffering from cutaneous diseases. Although these exclusive properties may be subordinate to several circumstances, difficult of appreciation, still they are not the less real nor less sacred, by the test of time. We are bound, therefore, to admit, that in many sources there are medicinal aptitudes which decide their mode of utility in certain special cases.

Nevertheless, it must be confessed, that the authors of monographic notices of the mineral waters have diffused much uncertainty in this branch of therapeutics, in almost invariably confining themselves to an enumeration of the maladies, against which such a source may be employed, without specifying the indications, that is to say, without designating the kind, the degree of the disease, nor the circumstances in which these remedies, of a nature very different, and sometimes even opposed, may be particularly suitable; also, we find frequently that waters, which have been useful against some morbid affection, have not only not succeeded, but have even been prejudicial, in cases to all appearance similar. It is evident, that to the want of these distinctions, is be be imputed the imperfection of our knowledge as to the curative action of the sanatory sources. All the eulogiums which are lavished on the waters are vain and dangerous, so long as the cases in which they ought to be applied are not specified with precision. To attain this object, the physician ought to bring together the facts, favourable or not, which he has collected; compare them; endeavour to reconcile them; and to

draw from them such deductions, as may aid him in determining the pathological states, for which the source which he directs is suitable; and at the same time, in deciding on the exceptions resulting from age, sex, temperament, complications, and from the nature, causes, and condition, more or less advanced, of the disease. Thermal medication is, as may be therefore seen, one of those which demands of the physician much tact and attention in its appropriation to different pathologic states of the human system: if he grounds his choice of a source only on the external features of a disease, he is exposing himself frequently to failure and to perilous miscalculations. To make this more clear, we cite some examples.

It is notorious, that most mineral waters have been recommended, as an excellent curative means, in chronic affections of a nervous character: hysteria, hypochondria, chorea, etc., which too often resist the usual resources of pharmacy. But if we take not into consideration the producing causes of these maladies, we run the risk of exacerbating them. When the nervous diseases are functional, depending on certain moral impressions, on an exaggerated sensibility, on rigidity, or a too highly toned state of the different tissues, they are powerfully alleviated by the mild unctuous and sedative baths of St. Sauveur, the Salut at Bagnères, etc. But when the diseased action originates in, and is maintained by, feebleness in constitution, abuse of watery beverages, and want of exercise, as we frequently meet with in females of a certain class, nursed in luxury in large towns, it is then necessary to supply organic tone, and to achieve this, to call in the aid of the

stronger sulphurous sources. If again, the nervous symptoms depend on a metastatic* cause, if they are the produce of suppression or irregularity of the menstrual or hæmorrhoidal flux, of a check to perspiration, or of rheumatismal, gouty, or herpetic retrocession, one ought, in order to produce an energetic revulsion, to have recourse to baths and douches of thermal waters, strongly mineralized. In short, if the nervous maladies are accompanied, as in hypochondria, with visceral embarrassment in the abdomen, then the waters of Vichy, Balurac, and Plombières, are indicated.

Rheumatismal maladies also, for which all the thermal waters, endowed with a high temperature, have been extolled, display the necessity for choice amongst all the sources; thus, those of long duration, affecting robust persons, little *impressionable*, are quickly cured by the active waters of Barrèges, and others of the same class; but, if the rheumatism be recent, accompanied with inflammatory symptoms, and if the invalid is of a highly nervous habit, the mild waters of Neris, Salut at Bagnères de Bigorre, etc., claim the preference.

The practical statements, now submitted, prove that the medicinal powers of the different mineral sources are far from being the same, and that their success is subordinate to the justness of the relative application of these waters to disease; in a word, the physician ought to exercise an intelligent and watchful discernment, in recommending this therapeutic agent. This truth will still more appear by the following rapid *coup-d'œil*, as to the therapeutic effects, chiefly of the sulphurous mineral

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* Metastatic signifies changeable with respect to situation.

waters, to which, more particularly at present, we would direct the attention of the reader.

By experiments with these waters on a person in sound health, they produce results altogether different, according to the temperament and the individual constitution. Thus, a person free from any bodily infirmity, but of a relaxed fibre, with a slow circulation, and a nervous system, little excitable, will experience a strong feeling of *bien-être*, and will feel his strength increased under the influence of the sulphurous bath, even at a temperature of 97° of Fahrenheit;—while, on the contrary, an individual of a nervo-sanguineous temperament, will, in a few days after the employment of these baths, arrive at having loss of appetite, disturbed sleep, scanty urine, constipation; indeed all those symptoms which indicate an excited condition of organic action. The physician inspector of Barrèges, Monsieur Pagès, testifies to having seen *persons in health*, after having taken in that establishment three or four *tepid* baths, seized with inflammatory fever, to the extent, as to render a rigorous mode of antiphlogistic treatment necessary; while *in a state of disease*, the tolerance of these waters is very remarkable. It is worthy of observation, that this power of bearing up against these unique properties, diminishes in proportion as the invalid approaches a state of health. A naval captain, whom long continued rheumatismal pains had crippled and rendered useless, took, during three seasons, the baths of Barrèges, and was completely cured. During his fourth visit, which he made out of gratitude, he could not support the same baths, which had been so propitious on preceding years; so true it is, that sound organs do

not feel after the same manner, as when they are diseased.

The *strong* sulphurous waters ought to be administered with the greatest caution, since they cause indolent affections to pass with extreme promptitude to the acute state: they are favourable, when organic action is feeble and languid, in individuals of a loose fibre, and of deficient irritability. They are not salutary, except in chronic affections, deprived of an inflammatory character; and their efficacy is more felt where the diseases are of long standing. Also, in articular rheumatism, if the baths be taken at a period too near to an acute stage, we risk a return of the fit, or a retarding of the cure; while, at a more distant period, there is much more chance of success. It is the same, also, with dartrous affections of the skin; it is not the most recent, which most readily yields to this mode of treatment. We ought *unequivocally to proscribe* these waters in *all organic lesions of the heart and brain,* and interdict their use to *infants* and to all individuals, *sanguine and irritable*, and in all maladies where we can detect an *active inflammatory element.* Physicians will readily comprehend the motives of these contra-indications.

And, again, with regard to diseases of the skin, for the cure of which these waters have been considered almost specific; nevertheless they do not succeed, except when there is great inertness in the vital properties of the skin, and when the patients are more of a lymphatic than of a sanguine temperament. It is a fact, almost invariable, under the action of the sulphurous baths, to see an exacerbation of the symptoms supervene, reviving the morbid action, which is gradually effaced, and gives

way to a cure more or less complete. These exacerbations are considered of so much consequence, on the results of thermal treatment, that, according to the experience of Monsieur Gerdy, at Uriage, and Monsieur Barrie, at Bagnères de Luchon, when they have not been produced, a permanent cure could not be calculated on, because the state of the skin had not been sufficiently modified. The new inflammation in raising the morbid state to the pitch of acute phlegmasia, contributes to resolve the engorgement and induration of the skin. To obtain a cure of cutaneous maladies, the length of the treatment ought to be proportioned to their severity and duration; for we ought not to forget, that they are obstinate only, and liable to relapse, simply, because very frequently they proceed from a constitutional cause, dependant on some special alteration of the circulating fluids. It is often, therefore, to an insufficient treatment, that we ought to attribute these relapses, so common in these affections, and not to want of power in the remedy. Monsieur Capuron, physician inspector at Castera Verdusan, when speaking on this subject, says, 'All these affections have been ameliorated, some cured; but in general, the patients leave off too soon the use of these waters, to be cured without relapse.'

It is particularly against scrofulous affections of joints, that the sulphurous waters appear to act with great efficacy. M. Pagès has seen, several times, strumous engorgements of joints, even when ulcerated, sensibly alleviated, and even cured by the waters of Barrèges, as often as the patients have used them with perseverance, that is to say, during several seasons. 'I have in my possession,' writes Dr. Pagès, 'a number of observations

regarding white swellings, which were considered as cases for amputation by several surgeons, and for which amputation had been actually counselled. These, under the influence of the Barrèges waters, have terminated favourably. I have never, in the hospitals of Paris, seen any mode of treatment produce effects so constantly advantageous. I do not pretend to affirm that our waters succeed in every case; indeed, when the organic alterations have arrived near their *dernier terme*, with the constitution of the patient completely deteriorated and undermined by hectic fever, then the waters of Barrèges, far from being useful, only hasten an inevitable death.'

All the world knows that the waters of Barrèges have acquired a just renown for the treatment of inveterate ulcers, old gun-shot wounds, and retractions of muscles and tendons. Muscular and fibrous rheumatisms, so often attended with the loss of the faculty of locomotion, are one of the maladies, over which the sulphurous baths very frequently triumph. They are, on the contrary, pernicious in gout, by renewing and aggravating the paroxysms. M. Barrie and M. Pagès cite many instances of such untoward result. Bordeu, the father of the fame of the Pyrenean sulphurous springs, had already remarked, that the gout had frequently shown itself, under the influence of the sulphurous baths taken for a different kind of disease.

The sulphurous waters check chronic uterine catarrh, when it is not complicated with organic injury, but depends on some accidental weakness, or on some morbid principle driven back on these organs, or on some abnormal action of the cutaneous function. They might be of great utility, says M. Carlotti, in all injuries of the

uterus derivable from a weakness of this part, in amenorrhœa from inaction, chronic inflammation, and in ulcers, not the result of cancerous degeneracy or syphilitic infection.

Paralyses, which succeed to rheumatism, to cutaneous inflammation or to habitual evacuations suppressed, are relieved or cured by the use of the sulphurous sources; which are, on the contrary, *completely contra-indicated in hemiplegia the consequence of apoplexy:* because the excitement provoked by these waters might be most dangerous in renewing the congestion of the brain.

It is generally admitted that the hydrosulphurous waters, particularly those of Eaux-Bonnes, of la Raillière, at Cauterets, and of la Bassère, at Bagnères de Bigorre, have been a useful remedy in certain chronic maladies of the respiratory organs, but it is necessary to prescribe their use with much circumspection. These waters may be opportune, when the pulmonary affection is the result of metastatic action, and where there does not exist fever, nor where the patient is of a lymphatic temperament complicated with scrofulous deposits. In such cases, M. Buron, the inspector of Cauterets, has seen consumptive patients, whose state was considered desperate, return the following year to the source with their symptoms remarkably alleviated; often also among those supposed to have been cured, the *march of the disease has been found to have been only temporarily suspended.* But when the lungs are a prey to a disorganizing process, infested with tubercles in a state of suppuration, the sulphurous sources, particularly the very hot, furnish fresh fuel to the irritation, and accelerate the fatal catastrophe. They are also equally fatal to those who labour

under hypertrophy of the heart, or large vessels. May these observations then impress on medical men, distant from these springs, that the sulphurous waters, as applicable to such a state of pulmonary disease, *abridge the days of the patient*, and that it would be much better to permit him to draw his last breath in the bosom of his family, and soothed by the sympathies of home associations.

These waters repair functional derangements; but cannot re-cast disorganised viscera; it is, therefore, with considerable confidence, that persons affected with obstinate pulmonary catarrh, where the fever has little intensity, and where there is a predominant atony of the mucous membranes of the trachea, bronchi, and gastro-intestinal mucous membrane, often the forerunner of severe organic lesion, may resort to the sulphurous sources, and to none with better success than to the waters of Cauterets.

The effect of the climate of Pau, as has been fully dwelt upon elsewhere, being to reduce the tone of the natural temperament, and to modify arterial action, we have seen several cases of disease, such as chronic bronchitis, in nervo-sanguineous habits, with fever and permanently increased pulse, as well as acute rheumatism, in a similar temperament, reduced by a residence in Pau, to the standard, which brought them safely *under the influence of the sulphurous mineral waters;* whereas, on the first arrival of the patients, all the symptoms would have been, most certainly, *materially aggravated* by their use.

The season for taking the different waters has been regulated by the government, generally commencing on

the first of June, and terminating the end of September. But July and August are the best months, particularly for Barrèges, St. Sauveur and Cauterets; for, from their great elevation above the level of the ocean, settled weather can hardly be depended on, in other months.

As in the taking of these waters with safety, it will be necessary that it be under the surveillance of a physician, it is not necessary here to give any hints, as to the regimen to be followed, the duration of the period during which the waters ought to be continued, and many other minor matters. These, depending so much on the state of each individual, must be regulated for him, on the spot, by the medical adviser, in whom he may place confidence.

CHAPTER XXI.

BAGNÈRES DE BIGORRE.

GENERAL FEATURES. — ANCIENT HISTORY. — CLASSIC REMAINS. — PRESENT STATE OF BAGNÈRES DE BIGORRE. — OBJECTS OF INTEREST.

WITH Bagnères de Bigorre we shall commence the particular description of those watering-places in the Pyrenees, to which we intend to confine our attention. We place it first in order, because the invalid may, after a winter's residence at Pau, if *ennuyé'd*, resort to it at an earlier period of the summer, for change of air, than to any other of the mineral stations in the mountains. It is situated at the foot of the Pyrenees, about thirty-five miles to the south-east of Pau, at the commencement of the smiling valley fertilised by the Adour, being neither in the mountains nor yet in the open country, but embraced by the last sloping and well-clothed côteaux, as they terminate in the valley. The temperature is not so high as at Pau, nor subject to such reductions as we experience, at an early period of the season, in other watering-places more distant from the plain. The mean temperature of the fine season, that is, from June to October, is stated, from the experience of many years, to be about 64° of Fahrenheit. Thus an invalid desirous of change of scene, if an atmosphere more humid than Pau is not contra-indicated in his case, may, for instance, quit Pau for Bagnères in the month of

May, while it might be attended by untoward circumstances were he at this early period, or even for five or six weeks afterwards, to take up his abode among the mountains. Another reason why we have given Bagnères the priority of description is, that in several cases of functional derangement, and even of organic lesion, where, at a later period, the more active sulphurous waters of the higher regions of the Pyrenees are looked forward to as calculated to alleviate the symptoms, if not completely cure the malady, the waters of Bagnères act advantageously in preparing the patient's system for the reception of these stronger waters. Besides, there are many cases of mild functional derangement, not of an acute, aggravated, or obstinate character, which receive decided benefit from the waters of Bagnères themselves, independently of any assistance at a later period from others. There is, also, in many respects, so great a similarity in some of the properties of its climate to that of Pau, namely, in its sedative influence upon irritation of the air passages and general pulmonary apparatus, that patients so circumstanced, who have derived benefit from the climate of Pau, and whose intention it is to remain another winter or more there, will have the advantages, commenced in one place, sustained in the other, without the drawback of the same high temperature. The change of scene, also, tends to aid the influence of climate.

Although the history of Bagnères de Bigorre is lost in the obscurity of unlettered times, still there can be no doubt, that it is entitled to claim the honour of a very remote origin, since indistinct and dreamy tradition even dates its foundation at so early a period as seven

centuries before the building of Rome, if we are to give credence to the authority of Père Laspales. But M. Salaignac, author of a work entitled *Cure des Eaux de Bagnères,* has mounted his Pegasus with an additional pair of wings, and soared far into the regions of mythologic lore to cull triumphs to adorn his favourite town, claiming for it an origin coeval with the wars of the giants, or, at least, the siege of Troy, when the impious rebels of Heaven, cured by the mineral waters of the now-called Bagnères de Bigorre, of wounds received in celestial conflict, in the incandescence of their gratitude, founded the town, and have kept it in hot water ever since; or where Mars, wounded at the siege of Troy by the bloodthirsty Diomede, was quickly set upon his legs by the use of these waters, and lived comfortably with Venus for some time thereafter 'all in the open air'; but finding this an inconvenience, with a small and rising family of little gods and goddesses, he commenced the nucleus of the now far-famed Bagnères de Bigorre.

It is equally well known, also, according to this and other veracious historians, that Hebe and Venus maintained the immortal freshness of their charms by bathing in the Pyrenean waters, and that they have left their influence still presiding over these mineral springs, particularly those of the Salut, which, something like the famed serpent-bath so graphically described in the *Bubbles from the Brunnens of Nassau,* convert disease into health, age into youth, and fifty into fifteen.

Although the great magazines of waters, which had given, for many ages, a character of importance to the town, were most probably coeval with the mountains; and from the time, however distant, that human beings

were found clustered together in this district, their curative virtues might be partially known; yet there is no historic evidence of weight to throw any light upon the history of Bagnères at a period even much less remote than the one to which tradition has laid claim.

It is, however, presumed, that Bagnères had already existed a considerable time when Publius Crassus, the conqueror of Aquitania, received the submission of the Bigorrese, and gave to the town, according to the custom of the Romans, the Latin appellation of *Vicus Aquensis*, or village of the waters, which is equivalent to its present name of Gascon origin, from *bagu*, a bath, and *agou*, water. The thermal establishments which the Romans, shortly after their occupation, founded in this place, seem to leave no doubt that the town was already of considerable importance in the eyes of the conquerors, and that it was considered the head-quarters of the governing power.

The Pyrenees, and particularly the high valleys which the Bigorrese inhabit, possess still many Roman remains. Those which have been found in Bagnères are more numerous than elsewhere; whence it may be presumed that the conquerors considered the town as the metropolis of those mountains, and these remains may be received as good evidence of the sojourn which the Romans made in this town.

The most ancient of the monuments which Bagnères seems to have possessed from time immemorial, is a votive altar to the nymphs. It is attributed to one of the Roman generals, who belonged to the first expedition in that part of Gaul. It remained a long time

overlooked, having been placed at first in one of the walls which surrounded the town. M. Jalon, however, who had a good museum and reading-room for the advantage of the visitors, released it from obscurity and, perhaps, destruction, by having placed it over the door of his house, in one of the most frequented streets of Bagnères, near to the great thermal establishment. The following is a copy of the inscription:—

NYMPHIS.
PRO . SALV
TE . SVA . SE
VER . SERA
NVS . V. S. L. M.

Another monument, not less valuable in the estimation of the antiquarian, is a votive altar placed in the front of a temple, which the ancient inhabitants, with the view of conciliating Augustus Cæsar, after having rebelled against him, and been twice conquered, had raised to Diana, for whom that emperor entertained a remarkable veneration. This temple, constructed between the left bank of the Adour and the right bank of the canal of the town, had been, on the introduction of Christianity in the fourth century, changed into the Church of St. Martin of Tours. It was demolished towards the middle of the seventeenth century; and the votive stone, on which was engraved the inscription which consecrated the temple to the favourite divinity of Augustus, was then placed on one of the fountains of the town, where it is to be seen at the present day.

NVMINI. AVGVSTI
SACRVM.
SECVNDVS . SEMBEDO
NIS . FIL . NOMINE.
VICANORVM . AQVEN
SIVM . ET . SVO . POSVIT.

Bagnères preserves another votive stone, with an inscription to the god of battles. Like the two preceding, it may serve to fix the date of its erection, since it appears to be absolutely of the same epoch with that consecrated to the nymphs by Severus Seranus. This stone, discovered a little distance from the town, upon one of the heights which look to the north-west, forms part of a pilaster of the inner gate of the garden of M. D'Uzer. An ancient tradition has given the name of Cæsar's camp to the place on which it was found.

MARTI.
INVICTO.
CAIVS.
MINCIVS.
POSITVS.
V. S. L. M.

*

At Campan also, two or three miles from Bagnères, a stone was found, one of the faces of which bears the following inscription:—

* The initials V.S.L.M. mean, according to some, *Votum solvit libenter merito;* and according to others, *Votum solvit loci manibus.*

IMP . CAE
SARI . M.
AVRE . VAL.
MAXIMO.
ANO . PIO.

The two inscriptions which follow, graven on marble, were found near Bagnères.

AGHONI.
A. E. O.
CHONI.
AVLINI.
AVRINI.
V. S. L. M.

A . B . O
LABVSIVS
V. S. L. M.

It is believed that they belonged to the temple of the god Aghon, that is, '*good water*,' which had been dedicated to this divinity at the village of Asté, two miles from Bagnères. Such at least is the opinion of Bullet, in his Memoirs on the Celtic language, where he says that Aghon was a deified fountain; *Agh* signifying 'water,' and *on* 'good.'

We find also, but of more modern date, the following inscription on the wall of the mineral fountain of Laserre, in the town of Bagnères de Bigorre:—

HIC
QUAM . NATURA . FECIT . MINERALIS
DEFLUIT . UNDA.
NEC . SALUBRES . MAGIS . HAUD . LYMPHÆ.
NASCUNTUR . IN . ÆVIS.
HAS . COLUERE . PATRES . CÆSAR.
DUM . REGNA . TENEBAT.

Bagnères was thus limited in proving its ancient origin to be the crumbling débris which time was every day swallowing up, till in 1823, when, on digging for the foundations of the present great thermal establishment, the magnificence of which, now sometime completed of marble, is highly honourable to the public spirit of the authorities, the workmen discovered some medals, with the effigies of Augustus, Trajan, and Marcus Aurelius. Stimulated by this discovery, the search was pursued with redoubled curiosity; and broken fragments of columns, with masses of mortar, harder than stone, enveloping pipes of lead, in a state of perfect preservation, were brought to view. Amidst the remains which had been preserved with so much care, the greatest curiosity was felt to read the history of times long past; nor was the interest lessened when, at the depth of a few yards, a square pond, lined with polished marble and adorned with wrought mouldings, was discovered.

There could be no doubt, that in this place there had existed Roman baths, of which the fragments of the pillars and other ornaments attested the beauty. In following up the excavations, at a little distance from the former bath, two others were discovered, the lining of which, as well as the order of architecture, were similar. The bottom was laid with slabs, and bordered with seats. As the works proceeded, another one was discovered, which was elliptical or circular, but in its dimensions much greater; since, supposing it to have been round, its circumference, calculated by the part of the circle already exposed to view, must have been forty yards. The seats were not in so good a state of preservation as those of the former baths, but were

coated with a reddish cement, which, from its roughness, led to the presumption that they had been covered with marble. The bottom was overlaid with the same cement. Every one was impatient to see this precious relic of the importance which the Romans attached to these waters brought fully into view, and hoped that in the midst of remains, escaped through so many ages, a light might be found to make clear the mystery with which the first origin of the town was shrouded. Necessity, however, prevailed. In following up these searches, the original object in making the excavations was for the time interrupted; but as it was urgent that curiosity, however laudable, should give place to utility, the further exploration of the rubbish was abandoned; and the Bagnerese saw with regret the earth again close over those classic evidences of her history, of which chance had revealed the existence. The designs also of the remains of an aqueduct, which had been constructed by the Romans for a thermal establishment, may be seen at M. Jalon's.

So often as it has been necessary to make excavations in Bagnères for useful purposes, it is not surprising that the pickaxe should, from such classic soil, release other equally interesting remains: thus, dedications to Hercules, to whom the Greeks also consecrated their hot springs, have been found in the neighbourhood of Bagnères.

It would be useless here to search deeply into the causes which made the thermal establishments of the Romans to disappear from Bagnères. It will be sufficient to allude shortly to the history of the Bigorrese, from the time that they became subject to the Roman yoke to the period when, three or four centuries afterwards,

shoals of barbarians, whom the Romans had long kept in check in the North, spread themselves like a pestilence through the centre of Europe.

The yoke which had been imposed upon the hitherto free Bigorrese by the conquest of Publius Crassus, the general of Julius Cæsar, as might be expected, galled not a little men who had not been accustomed to drink the bitter draught of slavery administered by foreign hands. They accordingly made many attempts to free themselves from this bondage; but in spite of the most obstinate and brave resistance, they were again subdued by Augustus, the successor of their first conqueror.

Still, amidst this and other unsuccessful attempts for freedom, a better light was being gradually diffused amongst them. The arts of civilization, of which, fortunately for those vanquished by the Romans, they could not prevent the extension, produced a more contented spirit; and the ignorance and coarseness of the Bigorrese, which were proverbial among their neighbours, yielded to a more humanising influence, and their minds were, by a gradual transitive process, prepared for the more easy reception in the end of the third century, of Christianity, which first planted its standard on the everlasting temples not made by hands, —the highest regions of the Pyrenees,—and speedily extended its drapery over the whole of Bigorre, even to Tarbes.

About this period, the kingdom of the Cæsars fell before a colossal mass of brute force, dragging down in its descent the useful institutions it had invented for itself and engrafted on other nations.

After a long series of conflicts and changes of masters,

successively the slaves of the Visigoths, the Francs, and the Saracens, Bigorre settled down into comparative tranquillity. It was erected into a county, and became hereditary in the beginning of the ninth century, having been held under the kingdom of Navarre. Since then there have been many episodes of blood; some arising from internal quarrels, others from the ambitious designs of foreign aggressors. Nor can we omit to mention the cession in the fourteenth century of this and other provinces to England, the result of a long and bloody war, terminated by the treaty of Bretigny; and the subsequent resumption by the crown of France, the equal consequence of sanguinary and long-continued conflict betwixt the two nations.

Public attention became more directed to Bagnères in the course of the fifteenth century. The fame arising from the multiplicity of its mineral sources, and the narratives of the wonderful cures performed by the use of its waters, commenced, and has continued steadily increasing to our days, in a variety of functional maladies, not of an over grave character. What a gloomy interregnum we have here, from the period when the Romans watched over the healing springs! Instead of the benign influence of those waters directed to alleviate the sufferings of humanity, we find their establishments destroyed, the virtues of the waters disregarded, if not altogether forgotten, and a succession of dark and sanguinary tyrannies, spread over many hundreds of years, destroying the products of intelligence, burying improvement in an almost hopeless grave, and inflicting the most signal calamities on human nature and on the progress of society.

From this time Bagnères became a place of general

rendezvous, to which the kings of Navarre transported their court during the season of the waters, and where flocked all that France contained that were illustrious and distinguished. Bagnères, in a word, by the beauty of its site, and the salubrity of its numerous springs, became a place of fashionable resort.*

Montaigne, who paid Bagnères a visit, had given to it an *éclat*; and we find the following description of its condition at that time. We adhere to the old orthography of his period. 'J'ay veu par occasion de mes voyages, quasi tous les bains fameux de la Chrestienté, et depuis quelques années ay commencé a m'en servir; car en général, J'estime le baigner salubre, et crois que nous encourons nos legières incommodités en nostre santé pour avoir perdu cette coustume, qui éstait généralement observée au temps passé quasi en toutes les nations, et est encore en plusieurs de se laver le corps touts les jours, et ne puis imaginer que nous ne vaillions beaucoup moins de tenir ainsi nos membres encroustez et nos pores estoupez de crasse. A cette cause j'ay choisi i'usque cette heure a m'arrester et à me servir de celles ou il avait plus d'aménitié de lieu, commodité de logis, de vivres, et de compaignies comme sont en France les bains de Banières.'

With regard to the appearance of Bagnères at this epoch, we are informed by contemporary historians, that it had its walls, bastions, towers, ramparts and drawbridges, and that the houses were closely and irregularly packed together, the streets crowded with dunghills and filth of all kinds, so that it fully required the well-tried

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* *Bagnères de Bigorre et ses Environs*, par M. PAMBRUN.

qualities of the waters, and the general salubrity of the country, to overbalance those disadvantages, and to make Bagnères what it was in those days, not only the rallying point of valetudinarians, but also of those who wished to preserve intact the good health they possessed.

Bagnères of the present day has indeed undergone great changes since the days of Montaigne.

There is perhaps no town in France which has greater attractions at first sight than Bagnères. As you approach it from Tarbes, which is distant thirteen miles, you have at first a very fruitful plain, then richly-wooded côteaux advancing in gradual undulation, encircling Bagnères, then mountain piled above mountain, and, towering over all, in the elevated horizon, the Pic de Midi, at a height of 10,000 feet, stretching over the less elevated mountains in its foreground, as if peeping into the town.

On entering the town, one is very much struck with the well-kept macadamised streets, which are a great relief after the flinty streets of Pau, and the neat white-washed houses, each vying with its neighbour in cleanliness and comfort, both external and internal. It cannot be denied, that although Pau has had the advantage of an influx of English strangers for a period of thirty-five years, which circumstance naturally tends to improve a town, remote as Pau is from the capital, in the substantial circumstances of cleanliness and comfort, still Bagnères in these respects is entitled to rank even before Pau. Its houses are commodious and modern, the gardens numerous and well-arranged, and its promenades on horseback and on foot—the invariable accompaniment of advancing taste—are chosen with great judgment, in reference to the varied views of mountain and precipice,

of wood and water, and the far-stretching valley of the Adour.

Bagnères contains a regular population of 8000 souls, exclusive of visitors, 4000 of whom it can also accommodate during the season, which commences in June and ends in October. It is entitled to rank as the second town in the Department of the High Pyrenees. It has an elevation of 1600 feet above the level of the sea, and is beautifully situated at the junction of the valleys of Campan and the Adour, snugly nestling at the very feet of the Pyrenean chains.

At the present day there are no disadvantages connected with Bagnères as a place of residence to the visitor in health; but many *agrémens* to amuse. His time can never hang heavily on hand, varying his occupations, as he constantly may, by excursions on horseback and on foot, *pic nics,* botanising, *chasséing*, and lionising among the never-ending varieties of scenery. In place of the bastions, towers, ramparts and drawbridges of Montaigne's time, with the crowded and ill-ventilated streets, and dunghills into the bargain, we now see an open and smiling suburb, admitting a free circulation of pure mountain air, through numerous streets lined with a better description of houses than is found in other towns of much greater pretension and infinitely more wealth and population, while the streets are refreshed by rivulets of water from the Adour, that line each side, and gallop on with a gay brattling merriness of sound. Theatres, concerts, and balls, fill up the evening occupations of those whose tastes so dispose them.

For the invalid, the great number of the mineral springs, varied in their temperature and virtues, exert an

alleviating and healing influence, supposing that his case has been properly chosen in reference to the properties of the waters. We shall afterwards endeavour to lay down some discriminating rules to guide him in the choice or avoidance of these therapeutic agents.

'It has been said of Bagnères,* that it is a town where pleasure has raised her altars beside those of Esculapius; and this is true, for it is only at Bagnères, among all the watering-places of the Pyrenees, that that kind of pleasure is to be found, which is usually sought for at a watering-place. Bagnères is, for this reason, by far the most frequented of the baths, because it is not resorted to by invalids only, but also by two other kinds of visitors; those whose slight ailments are compatible with the pursuits of pleasure, and those who are driven by the heats of summer from the plains of France to the mountain air of the Pyrenees. Among this latter class may be ranked a few of the English who reside at Pau and its neighbourhood. It doubtless possesses many advantages both to the healthy and infirm. Delightful drives and promenades, and the gaiety occasioned by some thousands of persons who have nothing to do, are sufficient attractions for the former; and the abundance, the choice and salubrity of the medicinal springs, are attractive enough to the latter.'

House-rent is considerably cheaper than at Pau, and much more so than at any other of the watering-places, and the necessaries of life in a corresponding ratio as to expense.

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* *Switzerland, the South of France, and the Pyrenees, in* 1830; by H. D. Inglis.

The objects of interest in the neighbourhood are, the Elysée Cottin, a most retired hermit-looking spot, three-quarters of an hour from Bagnères, where that authoress composed some of her works; the Vallée de Campan, in the *exaltée* imagination of some, equal to the vale of Tempe; the L'Heyris mountain, so famed for its botany, as to have received the flattering title of the temple of Flora; the monastery of the Escaladieu, two leagues from Bagnères; and, a little further on the Toulouse road, the Château of Mauvoisin, celebrated in the wars of the English, and connected with the exploits of the Black Prince. Also the ascent of the Pic de Midi, and the passage of the Tourmalet to Barrèges; the visit to Cæsar's camp in the neighbourhood, and the exploring of the various devious windings among the valleys, such as those of Labassère, Trebons, and L'Esponne.

Nor ought we to omit to mention the Palomière, on one of the heights to the north-east of Bagnères. These heights are crowned by a row of trees, like an army in line, placed at distances of a few yards, and nets are attached to the trees along the whole ridge, while persons are perched aloft, some one hundred to one hundred and fifty feet, on perilous-looking cradles, supported by poles joined together triangularly at the apex. It so happens that during the months of September and October, flocks of wood-pigeons, migrating from the mountains, pass over these heights. When a flock comes in sight, the persons aloft make noises which frighten the birds, and cause them to descend to the level of the nets, while, at the same time, they are fluttered by the representation in wood of birds of prey being thrown by the persons on the watch. They thus easily fall

victims, getting entangled in the nets, which, being connected by a master-cord, close round them and prevent their escape. The sport being of a novel character, is sufficiently exciting to induce one to take the necessary exercise to witness it; and the view from the scene of operations is very fine; the valley of Adour on the one hand and the great Pyrenean peaks upon the other.

Mrs. Boddington,* who has described this sport with great spirit, says, 'After wondering how the man gets into his basket, one wonders how he can keep himself from falling out; but there he sits, from early in the morning until dusk, keeping watch, sometimes without the slightest glimpse of a bird, but always, I should think, with a full view of danger; but he, I suppose, thinks otherwise. For myself, were an alternative offered me, and a choice imperative, I should prefer the Eddystone lighthouse to this perch in the air, with the ground a hundred feet below, for there one has some sort of *terra firma*, though one may be stormed off or starved on it; but to hang in the air like a dead leaf, at the mercy of every random blast, is a position to which no effort of reason could reconcile me. But these men make nothing of it, and sit in the clouds as the tragic muse of Reynolds does in her chair of state, quite comfortably.'

In the town itself, in addition to the various mineral springs, there are other objects of interest which may repay the trouble of a visit, such as the marble works of M. Geruzet, where all the varieties of Pyrenean marble, from seventy to eighty in number, may be found manu-

* *Sketches in the Pyrenees*, vol. ii. p. 75.

factured into varied articles of necessity and taste. M. Geruzet is an intelligent and polite man, and appears very willing to communicate what he knows of those marbles to strangers, and permits them to inspect the different processes of his extensive manufactory. Bagnères, also, is famous for its knitting, and ladies who are curious in these matters find an ample field for admiration as well as expense. The reading-room and museum of M. Jalon, and the well-stocked museum of M. Philippe, who has specimens of most of the quadrupeds and birds of the Pyrenees, preserved by his own hand, are objects of interest. The two large rooms also of the wings of the great thermal establishment contain many interesting objects. The one is devoted to paintings, the greatest number of which represent the different Pyrenean views most celebrated for their beauty and grandeur. The second *Salle* contains various specimens of natural history. It has already methodically classed, for the study of geology and mineralogy, a very fine collection of rocks and minerals, illustrative of the mountains; and in the animal kingdom there are 2000 specimens of quadrupeds, birds, and insects, natives of the Pyrenees.

The promenade of the Salut, which commences near the centre of the town, and extends under the shelter of a double row of trees, for the distance of three-quarters of a mile, is frequented from the hours of six to nine o'clock during the season with crowds of visitors in well arranged toilette.

CHAPTER XXII.

BAGNÈRES DE BIGORRE, CONTINUED. — CLASSIFICATION OF THE WATERS OF BAGNÈRES. — THE FORMATIONS WHENCE THEY ISSUE. — DESCRIPTION OF THE DIFFERENT SPRINGS. — TEMPERATURES.—PHYSICAL AND CHEMICAL PROPERTIES.— SYNOPTICAL TABLES OF THE CHEMICAL ANALYSIS OF THE PRINCIPAL SPRINGS.

BAGNÈRES DE BIGORRE and its neighbourhood possess a great abundance of mineral springs, more remarkable, however, in reference to their quantity than to any great variety as to quality; not fewer than forty-two *distinct* saline springs being claimed for Bagnères alone by those who, feeling a warm interest in every thing connected with the prosperity of the town and the reputation of its waters, advocate their separate identity more enthusiastically than they are perhaps entitled to. Although the springs vary considerably in point of temperature, and in some degree as to the proportions of the mineralising principles which enter into the composition of their waters, still there can be little doubt that these numerous springs are modifications of a much smaller number. We, however, do not feel disposed to quarrel with these partialities, which are sufficiently natural, and which are not by any means confined to Bagnères, but are found influencing and mystifying the real circumstance of other watering-places, not only in the Pyrenees, but all over the world.

Our duty consists in endeavouring to extract, by the

aid of our own experience, from the mass of circumstances before us connected with the therapeutic action of the waters on disease, some conclusions which may really be useful to the invalid, and leave the marvels, which are claimed with considerable parade, to amuse the credulous and to keep hope alive. Although we consider the mineral waters of Bagnères to be the least efficacious of those of the Pyrenees, where a strong impression is to be made in the cure of obstinate diseases, still there is sufficient benefit derived from them in many of the ordinary functional derangements which, after all, go to make up the details of suffering among the generality of invalids, as to deserve some description. But we are free to confess, from our own impressions, with regard to the curative powers of these waters, that were there none other of a mineral nature in the Pyrenees, and were not the climate of Bagnères highly auxiliary to their action, we should not think it necessary to enter into any particular description of them, far less to pass such an eulogium as might induce persons to leave England to partake of them with the view of deriving relief in any severe malady. We think that almost in any country, and most certainly in England, waters quite as efficacious may be found, applicable to the same classes of disease as those for which the Bagnères springs have been so warmly recommended; but as they form a part of a great system of mineral sources scattered over the Pyrenees, some of which exert a most powerful, and in some varieties of diseases, a unique influence, and as they may be made auxiliary, antecedently and succedently to a general plan of treatment in relation to the stronger waters, they become of greater

importance, and require a more lengthened notice than they would otherwise deserve.

The mineral springs of Bagnères and neighbourhood are divided into— 1. Saline; 2. Ferruginous; and, 3. Sulphurous. The saline springs are confined to the town itself, within the boundary of its ancient walls: the single ferruginous spring, *par excellence*, being half a mile from the town, although some trace of iron is detected in some of the saline springs: and the sulphurous, a solitary one also, is situated in the valley of Trebons, at the distance of two leagues.

1. The *saline waters* of Bagnères de Bigorre are perfectly transparent and limpid, almost inodorous, of a mawkish taste, and communicate to the palate, in a slight degree, an astringent and ferruginous impression. Their specific gravity is a little higher than that of distilled water; and almost all, by exposure to the air, deposit carbonate of lime and sesquioxide of iron. Those only which spring from below upwards, disengage a mixture of nitrogen, oxygen, and carbonic acid gases. Of the saline sources of Bagnères, some emerge from the heights, more or less considerable on the eastern slope of Mount Olivet, which overlooks the town on the west; and others spring up from the alluvial soil deposited by the Adour and its tributaries. The first class springs immediately from a rock of schistus limestone, surmounted by argillaceous schistus, and this again by masses of secondary amphibolique formation.

It has been said, that these springs always have an invariable temperature, in all seasons and in all states of the atmosphere; but this is not correct to the extent claimed. Although the variation in their temperature

is not great, still they do not always maintain an unvarying elevation. This variation is less observable, however, in the waters whose sources are mountainous, than in those which spring up in the plains. In these, the varieties of temperature are more frequent and considerable in consequence of their being more exposed to the infiltration of rain-water; and of the cooling which they necessarily undergo in their passage, sometimes considerable, to their different points of exit.

The saline springs which we shall notice are twenty-two in number, viz., six which are found in the great thermal establishment, and the remainder which belong to private individuals.

	Thermal Establishment.	Fahrt.
Dauphin	29 Baths, 4 Douches, 1 Vapour-Bath, and 2 Buvettes*	119°
La Reine		115
Roc de Lannes		113
St. Roch		106
Foulon		94
Des Yeux		85

Private Establishments.

Bellevue—10 Baths, 3 Douches	114
Carrère Lannes—4 Baths, 1 Buvette.	
1st Source	124
2nd Do.	114
Casaux—6 Baths, 2 Douches	
1st Source	124
2nd Do.	114
Fontaine Nouvelle.	
Source de la Fontaine Nouvelle	97
Filet du Dauphin	111
La Guthière—10 Baths, 2 Douches	104
Grand Pré	95
Laserre—4 Baths, 2 Buvettes.	
1st Source du Portail	118
2nd Do.	102
3rd Do.	102

* The fountains where the invalids drink the waters.

(*Private Establishments continued.*)	Fahrt.
Mora—2 Baths.	
1st Source	122°
2nd Do.	90
Petit Bain—For the Baths	115
For the Douches	108
Petit Barrèges	91
Petit Prieur—2 Baths.	
1st Source	100
2nd Do.	89
Pinac—6 Baths, 2 Buvettes.	
1st Source, supplying No. 1	107
2nd Do. supplying No. 2	92
3rd Do., called the Ferruginous	96
4th Do., du Jardin	96
Salut—10 Baths, 1 Buvette.	
Source de l'Ancien Salut	90
Source de la Montagne	90
Source de la Pompe	88
Santé—1st Source	88
2nd Do.	81
Théas—3 Baths, 2 Douches.	

It is unnecessary to give any minute description of the individual sources. Generally they have the same principles of mineralization, varied as to their relative component quantities, as will be seen by the tables which follow, and differing as to temperature, as has been already shown by the preceding catalogue. Although generally composed of the same principles, yet experience has proved, that they are not equally and indifferently applicable to the same diseased state of the system; but that considerable delicacy of decision is necessary in applying the appropriate source, of which there are many shades, to the symptoms most usually benefited by its use; while, on the other hand, not unfrequently have the symptoms been not only not ameliorated by an indiscriminate recourse to these waters, but have been very decidedly aggravated by a blind method of administering them.

The following division of the waters, in reference to their action upon the human system, has been proposed by Dr. Limonnier, after much consideration and experience of their virtues; and as his views are reasonable, and accord with what we ourselves have observed, we adopt his classification.*

Table of the principal Saline Sources of Bagnères, grouped and arranged after their analogy of medical properties.

Stimulating Waters.	A little ferruginous . . .	Casaux. Théas. Dauphin. La Reine. Petit Bain. Saint Roch.
	Scarcely ferruginous . .	Salies. Mora. Roc de Lannes. La Guthière. Laserre. Pinac, No. 1. Petit Prieur (hot source).
Waters which are intermediate between the two extreme classes		Fontaine Nouvelle. Pinac (the Garden source, and that called the Ferruginous). Grand Pré. Versailles. Pinac, No. 3.
Waters Tonic and Sedative.	Astringent	Source des Yeux.
	Mild	Salut. Petit Barrèges, No. 1. Carrère Lannes. Santé. Petit Prieur (cold source).
	Emollient	Foulon.

The following are tables of the analysis of the different saline sources:—

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* *Bagnères de Bigorre sous le Rapport Médical et Topographique*, p. 59.

TABLE I.

Analysis of the Saline Waters of Bagnères de Bigorre.—Water, a quart.

Substances contained in the Waters.	Source de la Reine.	Source de Dauphin.	Source de St. Roche.	Roc de Lannes.	Source de Foulon.	Source des Yeux.	Fontaine Nouvelle.
	grs.	grs.	grs.	grs.	grs.	grs.	grs.
Carbonic Acid*	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.
Chloruret of Magnesium . . .	0·130	0·104	0·224	0·222	0·142	0·196	0·158
Chloruret of Sodium . . .	0·062	0·040	0·109	0·070	0·326	0·060	0·060
Sulphate of Lime	1·680	1·900	1·995	1·942	0·158	1·876	1·818
Sulphate of Soda . . . }	0·396	0·400	0·000	0·000	0·000 }	0·490	0·000
Sulphate of Magnesia . . }		0·000	1·257	0·278	0·127 }		0·270
Subcarbonate of Lime . . .	0·266	0·142	0·000	0·136	0·124	0·312	0·182
Subcarbonate of Magnesia . .	0·044	0·019	0·054	0·017	0·072	0·012	0 058
Subcarbonate of Iron . . .	0·080	0·114	0·078	0·014	0·000	0·044	0·000
Fatty resinous substance . . .	0·006	0·009	0·006	0·006	0·012	0·010	0·007
Vegetable Extract	0·006	0·008	0·005	0·008	0·005	0·012	0·004
Silex	0·036	0·044	0·040	0·031	0·040	0·043	0·044
Loss	0·054	0·020	0·024	0·036	0·034	0·052	0·039
Total . . .	2·760	2·800	2·792	2·760	1·042	3·107	2·640

* The Gases which are disengaged from the Saline Sources of Bagnères de Bigorre, are a mixture of Carbonic Acid, Oxygen, and Nitrogen.

TABLE II.

Continuation of the Analysis of the Saline Waters of Bagnères de Bigorre.—Water, a quart.

Substances contained in the Waters.	Source de l'Intérieur.	Source de l'Extérieur.	Bains de la Peyrie.	Bains de Grand Pré.	Bains de Versailles.	Bains de Santé.	Bains de Petit Prieur.	Bains de Carrère Lannes.
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.
Carbonic Acid	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.	q. ind.
Chloruret of Magnesium .	0·145	0·072	0·132	0·204	0·228	0·214	0·292	0·222
Chloruret of Sodium . .	0·430	0·308	0·103	0·084	0·074	0·075	0·085	0·067
Sulphate of Lime . . .	0·960	0·800	0·788	1·560	1·596	1·504	1·712	1·576
Sulphate of Soda	0·000	0·308	0·000	0·000	0·000	0·000	0·000	0·000
Sulphate of Magnesia . .	0·000	0.000	0·236	0·380	0·328	0·396	0·316	0·324
Subcarbonate of Lime . .	0·138	0·240	0·248	0·396	0·508	0·260	0·344	0·260
Subcarbonate of Magnesia .	0·010	0·018	0·068	0·052	0·064	0·059	0·050	0·058
Subcarbonate of Iron . .	0·040	0·022	0·000	0·028	0·028	0·000	0·000	0·000
Fatty resinous substance .	0·008	0·009	0·004	0·005	0·004	0·008	0·004	0·004
Vegetable extractive matter	0·010	0·018	0·007	0·006	0·005	0·008	0·006	0·008
Silex	0·034	0·028	0·018	0·040	0·005	0·030	0·054	0·056
Loss	0.025	0·011	0·016	0·025	0.032	0·029	0.034	0·033
Total . .	1·800	1·834	1·620	2·780	2·872	2·583	2·897	2·608

TABLE III.

Continuation of the Analysis of the Saline Waters of Bagnères de Bigorre.—Water, a quart.

Substances contained in the Waters.	Bains de Casaux.	Bains de Mora.	Bains de Théas.	Bains de Laserre.	Bains de la Guthière.	Bains de Pinac.	Source de Petit Bain.	Fontaine de Salies.
	grs. q. ind.	grs. q. ind.	grs. q. ind.	grs. q. ind.	grs. q. ind.	grs. q. ind.	grs. q. ind.	grs. q. ind.
Carbonic Acid								
Chloruret of Magnesium .	0·250	0·218	0·196	0·172	0·340	0·249	0·276	0·236
Chloruret of Sodium . .	0·112	0·082	0·114	0·046	0·062	0·190	0·077	0·086
Sulphate of Lime . . .	1·716	1·563	1·852	1·832	1·876	1·396	1·708	1·821
Sulphate of Soda . . .	0.000	0.000	0·376	...	...	...	...	...
Sulphate of Magnesia . .	0·478	0·284	0·000	0·408	0·036	0·287	0·344	0·362
Subcarbonate of Lime . .	0·160	0·580	0·156	0·230	0·160	0·436	0·276	0·292
Subcarbonate of Magnesia .	0·050	0·036	0·022	0·062	0·036	0·076	0·052	0·050
Subcarbonate of Iron . .	0·098	0·028	0·088	0·018	trace	0·060	0·068	...
Fatty resinous substance .	0·006	0·006	0·010	0·004	0·005	0·008	0·006	0·004
Vegetable extractive matter	0·012	0·007	0·009	0·007	0·007	0·010	0·007	0·032
Silex	0.032	0·052	0·048	0·040	0·048	0·043	0·028	0·032
Loss	0·044	0·041	0.045	0·021	0·032	0·045	0·038	0·018
Total . .	2·958	2·897	2·916	2·840	2·602	2·800	2·880	2·933

2. *Ferruginous Source.* There is only one ferruginous spring, properly so called, *la Fontaine Ferrugineuse*, situated ten minutes' walk from Bagnères, on the declivity of the same Mont Olivet, but further to the north, from which we have seen a considerable number of the saline sources proceed. This fountain may be reached either by a promenade full of fine points of scenery, which winds to the back of the great thermal establishment, and which gradually ascends, so as to be practicable by the invalid, to the elevation of the fountain, 200 or 300 feet from the level of Bagnères. Or it may be approached by a more abrupt scaling of the hill on which it is situated.

The mineralizing principles which are held in solution in this water, evidently proceed from the decomposition of the neighbouring soil, which contains considerable quantities of amphibole and feldspath. The temperature of this source is very variable, as we may easily suppose, since the waters which supply it pass over the mineral beds, at very little depth below the surface, in which it resembles all other sources that vary in temperature, in proportion as their reservoir approaches atmospheric influence. In the month of August, 1839, at ten o'clock A.M., the temperature of this source was 62°, that of the external air being 71°; on the tenth of September, in the same year, its temperature, at nine o'clock A.M., was 57°, that of the atmosphere being 63°. Indeed its temperature never rises above 64°, nor sinks below 52°.

M. Vauquelin analyzed, in 1817, this water, and found it contained oxide of iron, carbonate of potass, a portion of certain vegetable brown matter, a small

quantity of carbonate of lime, of chloruret of potassium, and a little silex.

3. *Sulphurous Source.* There is properly speaking, only one sulphurous source in the neighbourhood of Bagnères which has acquired any reputation, viz., that of Labassere. It is situated at the extremity of the valley of Trebons, about two leagues from Bagnères on the right bank of the stream Ouessouet, at the feet of the great heights, which on this side form the pedestal of Mont Aigu. It springs, like the greater part of the sulphurous sources, from the point where the primitive formations, and those of transition, come into contact. The source is very abundant; the water is limpid, without a penetrating odour, and the flavour clearly sulphurous. It is, in consequence of its low temperature, less disagreeable to the taste than those of Cauterets and of Barrèges, easy of digestion and passes quickly.

The following is the chemical analysis of a quart of water of this spring, as given by Patissier:—

Carbonic acid . . .	inappreciable quantity.	
Hydro-sulphuric acid . . .	quart	0·062
Chloruret of Sodium . . .	. grs.	0·206
Hydro-sulphate of Soda . . .	. do.	0·042
Sub-carbonate of Soda . . .	. do.	0·044
Vegeto-animal matter . . .	. do.	0·046
Silex	. do.	0·018
Loss	. do.	0·008
		0·364

CHAPTER XXIII.

BAGNÈRES DE BIGORRE, CONCLUDED.— REMARKS ON ITS CLIMATE AS AFFECTING DISEASE.— MEDICAL PROPERTIES OF ITS WATERS. — MODE OF ADMINISTRATION AND ACTION OF THE WATERS.— CLASSES OF DISEASE, FOR THE ALLEVIATION AND CURE OF WHICH THE INDIVIDUAL SOURCES, SALINE FERRUGINOUS, AND SULPHUROUS, ARE SUITABLE.

THE climate of Bagnères, like that of Pau, exerts an influence of a decidedly sedative nature on health and on disease; and, indeed, from its great similarity in repressing irritation of all kinds, as we have before remarked, may be considered as the one to which invalids, who are anxious to continue the good effects which they may have derived from a winter's residence in Pau, should the sea baths at Biarritz not be recommended, should resort, in preference to any other of the watering-places of the Pyrenees. It is well-sheltered from every wind, except a few points of the north, which seldom blows during the season of the waters.

The observations which have been made, with regard to the climate of Pau, apply, in many respects, to that of Bagnères. From many years' experience, we express it as our opinion, that it is chiefly beneficial,—

1st. Where there is a pre-disposition to tubercular irritation and softening, by lowering the tone of the arterial system, and diminishing the frequency of the respiratory number.

2nd. It is beneficial in tonic irritation of the mucous membrane of the trachea and bronchi, accompanied with dry cough, partial loss of voice, and viscid expectoration.

3rd. In cases also of tonic irritation of the digestive organs, accompanied with quickened pulse, eccentric developments of animal heat, emaciation, neuralgic pains, and acute affections of the joints of a mixed rheumatic and gouty character.

Dr. Farr, of Nice,* who spent two summers in Bagnères, thus gives his opinion of its climate:—'The climate of Bagnères is a decided one; it is anti-irritating and moist, depressing to the healthy, and has a tendency to allay irritation in every organ; and the pulmonary invalid soon finds that this is the kind of atmosphere he ought always to inhale; to him it is decidedly beneficial from the beginning; he escapes what the healthy never fails to experience, the seasoning common to all decided climates. The functions of each organ are more quietly performed; and the organ itself is soon brought into so tranquil a state, that any change in its structure originating in disease has a fair chance of being removed by proper remedial means; he is, in fact, placed in the best situation to be treated: climate, however favourable, rarely does more than this. A patient coming to Bagnères with serious disease and deranged structure of lung, will feel the beneficial influence of the climate while he remains.'—'The season of Bagnères is short; the pulmonary invalid ought to arrive in the early part of June, and may remain till the end of September. The thermometer at that period falls in the evening to 50° of Fahrenheit; he ought then to take his departure for Pau or Rome. I would on no account counsel any invalid, who has derived benefit from the climate of Bagnères, to go to

* *On the Climate of Nice, etc.*, p. 98.

Nice, at least, not until I have fairly tested the valley under the Cimiez hills.'

The general action of saline mineral springs, independently of the interference of climate, is that of a mild stimulant to the mucous membrane of the stomach, soliciting a greater and an improved secretion of gastric juice, and thus restoring a healthy power of digestion enfeebled by organic torpor. The waters, if taken in sufficient quantity, stimulate secretion in all the organs, and thus relieve congestions of the nobler apparatus.

The kidneys are the first organs to feel the influence of the saline waters; the quantity of their secretion being very much augmented, and the diuretic effect more constant than the laxative. On the other hand, the lymphatic system testifies its increased action by a more energetic process of absorption. This change in the secretions, on the one hand, and the increased activity of the absorbent vessels on the other, produce very marked alterative effects, by which chronic congestions, which have their seat in the abdominal viscera, or in the lymphatic system, are diminished or altogether disappear, provided they are susceptible of being reduced by remedial agency; and the system is put into a state, in many varieties of disease, to be beneficially impressed by the action of the stronger sulphurous waters of Cauterets, Barrèges, etc.

In certain affections of the skin, also, the saline mineral baths effect considerable benefit, not only independently, but as a preparative to other stronger remedial mineral agents.

The saline waters have been found beneficial in muscular contractions, diseases of the bones and their

articulations, and in chronic rheumatic affections. With regard to this last disease, it may not be useless to remark, that while, as an attempted remedial agent, common hot baths diminish the energy of the skin, and render it more liable to be acted upon injuriously by cold and humidity, the mineral baths, the saline particularly, stimulate the cutaneous system; and in adding to its vitality, give it a re-acting power to resist atmospheric influences.

In taking the saline waters internally, the quantity must have reference to the effect intended to be produced; if a purgative one, it will be necessary to take, fasting, a quart and a half to two quarts, dividing this quantity into three or more doses, and taking exercise between each. It is not unusual to mix some neutral purgative salt with the waters, to aid their powers. They act mildly, without irritating the organs of digestion; and instead of diminishing organic tone, rouse functional languor into energy.

Where it is wished to produce an alterative effect, the waters must be taken in smaller quantities.

The effects produced by the internal administration of the saline waters are rendered frequently more decided by their external application, in the forms of bath and douche. Thus, a simultaneous impression is made on two great surfaces, the skin and the mucous membrane of the stomach and intestinal canal. It is, in general, prudent not to commence the use of mineral baths until the system shall have been for some time accustomed to the internal stimulus communicated by the waters.*

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* *Manuel des Eaux Minérales*, par PATISSIER.

We shall now conclude this portion of the work on Bagnères de Bigorre, by giving a short detail of the classes of disease, which have been found by experience to be most suited to, and most benefited by, some of the individual springs. And here we acknowledge our obligation to the work of Dr. Limonnier, which has assisted us in making the following short *resumé*:—

In nervous diseases, such as hysteria, hypochondria, palpitations, and nervous spasmodic affections of the stomach, the waters of the Salut as a bath are recommended; to which, if there be an atonic habit of body present, the waters of the ferruginous fountain may be added internally; if there be bilious derangement, the waters of Laserre may be alternated with the latter.

In loss or diminution of voluntary motion, viz., rheumatism, lumbago, sciatica, and paralysis, without injury of the brain, we have the following indications:—In the case of an individual of small degree of excitability, the douche and vapour bath, and the baths, at a high temperature, of Casaux, Dauphin, La Guthière, Petit Bain, and la Fontaine de Laserre; while in one of a nervous temperament, irritable, and predisposed to apoplexy and organic congestions, the baths of Foulon, Grand Pré, and No. 3 of Pinac, are indicated. The internal use of the Laserre water is often, also, associated with this external treatment.

In pulmonary catarrh, humid asthma, chronic laryngitis, we recommend No. 3 of Pinac, Foulon, Grand Pré, St. Roch, La Guthière, Laserre; the water of Labassere internally, made tepid, mixed with milk, gum-water, or other diluent.

In excessive discharges from some mucous canals,

tepid baths at first, graduated down to those of lower temperature, No. 3 of Pinac, Salut, and, lastly, des Yeux. Injections, also, of the waters of Labassere, and of the ferruginous fountain, are practised with great advantage; and these waters are also taken internally in these affections.

In diseases of the skin, with bilious complication, or with any other organic affection, which contra-indicates the use of the sulphurous mineral springs, the waters of Foulon, No. 3 of Pinac, à l'entrée de Laserre, in bath, and the waters of Laserre and Labassere internally, are recommended and taken with advantage.

In diseases of the abdomen, viz., chronic inflammation of the stomach and bowels, chronic diarrhœa, congestions of the liver and spleen, and chronic inflammation of the liver, we have the following course to pursue:—If the affection depend on nervous irritation and a sub-acute state of inflammatory action, the waters of the Salut may be beneficially used, externally and internally: if, on the contrary, it depends on an atonic state, or where there is little excitability in the system, the waters of la Reine, la Fontaine Ferrugineuse, or of Labassere, internally, are the appropriate remedy; if, again, it be complicated with bilious derangement, without any symptoms of inflammatory reaction, the same waters may be administered in addition to those of Laserre.

There are other functional irregularities in nervous, atonic, and in sanguine constitutions, for each class of which some one or more of the saline springs are beneficial, in a remedial point of view. We cannot well, however, in a work of this kind, do more than thus refer to them *en passant.*

CHAPTER XXIV.

CAPBERN.—GENERAL DESCRIPTION.—SUCCINCT ACCOUNT OF ITS HISTORY.—CLIMATE.—STATE OF HEALTH OF THE NATIVE POPULATION.—OBJECTS OF INTEREST IN ITS NEIGHBOURHOOD.—PROMENADES AND RECREATIONS.—ANALYSIS OF ITS MINERAL WATER.—ITS MEDICINAL PROPERTIES AND MODES OF ACTION.—THE PATHOLOGICAL CONDITION OF THE SYSTEM BENEFICIALLY INFLUENCED BY ITS USE.

ALTHOUGH the waters of Capbern, situated, as their source is, only ten miles from Bagnères de Bigorre, might, not only from this circumstance, but also from their composition being purely of a saline character, have been included among those in that district, still, from their unique action in a very important though limited section of diseases, we have considered them as fully deserving a special and independent notice *per se*.

Unlike, however, in their early history, the waters of Bagnères de Bigorre, those of Capbern boast of no Grecian or Roman trophies, to indicate the worship paid to presiding deities for cures performed in times so remote. Here we find no votive altars nor consecrated urns, nor inscriptions puzzling to the antiquary, nor carved columns, nor fragments of statues, although M. Megé asserts that these waters were known to the Romans, and that they had given to them the name of *Aquæ Convenarum*.*

The imagination, however, loves to amuse itself with

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* *Statistique Générales des Départemens Pyrénées*, 1828.

a traditionary legend of miracle and romance of a later epoch, which has reference to the occasion of restoring to the world, if not of discovering, the sanatory virtues of the Capbern waters. It is said, that on a time, at Capbern, lived a certain maid of the mill, who, although forty years of age, enjoyed a reputation far and wide for her beauty and freshness of complexion, and who was, consequently, the envy of her fair rivals in the district, eclipsed as they found their new-blown charms to be by her, who, although in middle age, thus flourished in unfading youth. They sought anxiously to discover how it was that time thus passed over her in vain; for no wrinkle disturbed the serenity of her brow; her hair retained its raven gloss, her eyes their killing fire, her gait its elasticity, and her figure its delicacy and grace. Her companions, however, on the watch, discovered her secret; for at very early dawn, or in the deep gloaming, our heroine had been accustomed to steal unperceived to the solitary source, and renew her charms by drinking of its magic waters, and bathing in their juvenescing stream. But what secret will not woman, impelled by rivalry, penetrate? So it was; the maid was surprised, and, as may be expected, great was the afflux of candidates to the renovating spring, and wide-spread the influence of its powers.

However this may be, we have evidence to prove that the waters of Capbern were known in the twelfth century, for in the charter of translation of the Abbey of the Escaladieu, situated in the neighbourhood, mention is made of the streamlet of Gourgé, which is partly formed by the mineral waters of Capbern, under the name of *rivulus Gurga qui Aqua Callida appellatur.*

Capbern, a village of the department of the Hautes Pyrénées, has a population of six hundred souls, and is situated four leagues north-east of Bagnères de Bigorre, four leagues from Tarbes, the capital of the Hautes Pyrénées, one league and a half east from Tournay, and one league sout-west of Lannemezan. It is built on a small platform, through which the road from Bagnères de Bigorre passes to Toulouse, and which commands a most extensive view of the surrounding country. Its position, joined to the freshness of its vegetation, contrasted with the sterile Landes of Lannemezan, not far distant, had procured for it the name of Capbern, or green mount. The village itself is totally devoid of beauty, but is approached by a road which possesses at every winding a magnificent and varying vista of the Pyrenees, stretching out to the far east, and losing themselves to the eye in a vapoury uncertainty. The undulating and festooned plains spread out below, in gigantic mosaic work, for many a league, until they join the romantic province of Languedoc; while a mile and a half off the road to the left, nestling in a contracted valley, or rather gorge, the *beau ideal* of solitude and tranquillity, the mineral sources of Capbern are found *welling out*, in great abundance, with their attendant thermal establishment, and the few houses which have, from time to time, been erected for the accommodation of visitors.

The fame of these waters seems to have been, for many generations, in unpretending unison with the quiet solitude of their source, and their votaries to have been confined to the peasantry of the neighbouring districts, who, however little qualified to philosophise upon the theory of their curative action, were, no doubt, sharp

observers of results in a matter so important to them as a restoration to health and strength. One of the elements, and that not a trifling one, of the fame of the Capbern waters was, that they were an assured antidote to sterility, the philoprogenitive yearnings of the married fair sex not merely brought them to the waters as candidates, but, if disappointed, left them in the position of unfriendly critics; so that it may be inferred in a degree, although not absolutely, that the waters *had*, on the whole, sustained their reputation, and that the ticklish ground which any such remedy must hold in public estimation, had been strengthened upon trial. We are told by a good medical authority*, that 'Tous les ans, en effet, on voit un essaim de femmes nouvellement ou depuis long tems mariées venir à Capbern, dans l'espoir d'y trouver le doux titre de mère; et bien souvent notre Naïade leur accorde cette faveur.'

So it was, that while the sulphurous waters of Barrèges, Cauterets, Eaux-Bonnes, and Eaux-Chaudes had long secured for themselves an European fame, in many cases certainly not undeserved, the healing virtues of the Capbern waters were known but to a few; but by them preferred, in the cure of certain morbid ailments, to other more pretending and better supported mineral springs. But beneficial agencies, affecting human beings deeply in matters so personal as health, and perhaps more strongly still in the desire of perpetuating their family properties and names, are not likely for any length of time to have their influence confined to the meridian of a valley scarcely possessing a name; but, on the contrary,

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* *Lettres Médico-Topographiques sur Capbern*, par DR. TAILHADE, p. 121.

show the most natural tendency to extend their circles indefinitely, and include within their range an anxious host of votaries.

Long before the present comparatively capacious establishment of baths was thought of, the authorities of the Commune, to meet the increasing demand, had caused some rude wooden buildings to be erected, in which the sources were collected and dispensed to seven or eight baths. In so great request was the water, and so primitive the bathers in their feelings and habits, that it was not unusual to see a bath occupied by a number of persons of both sexes; as at some places in Switzerland, where twenty persons, and frequently a greater number, use the same bath, without being known to each other, and, according to the taste or caprice of the parties, indulge themselves in singing, reading, or the more substantial recreation of the *cuisine*.

During a considerable period, Capbern remained in this uncivilised state, because, no doubt, the qualities of the waters had not up to this time attracted philosophic attention, and their virtues were only empirically known to the peasantry. But their reputation steadily increasing, and the number of visitors in an equal ratio, the Government determined to erect a suitable establishment, where the sources might be more conveniently and more advantageously collected, and distributed with precision over a system of better arranged baths; and towards the end of 1817 this undertaking was accomplished.

This edifice, from its simplicity quite in character with its site, is built on the right bank of a little stream which leaps with a merry sound down the slopes of the gorge to the base of the côteaux, from which the waters have

their source. The building is an oblong square, twenty-five yards in length, twenty in breadth, and five in height. The corridors of this building lead to fourteen bathing rooms, spacious and well arranged; and there are also a douche, and two founts for the water-drinkers.

Since the construction of the thermal establishment, the accommodation for visitors has also improved in numbers and quality. Three years ago, two hotels and a lodging-house, only moderately well appointed, received from one hundred to two hundred persons. Since then an hotel on a better scale has been erected, and a spirit has been called forth among the proprietors, sufficiently enterprising to supply accommodations for an increasing number of visitors; while at the village of Capbern itself considerable numbers may be lodged; and Bagnères de Bigorre is not too far removed from Capbern to prevent a person visiting it three or four times a week in fine weather, the exercise rather tending to assist the beneficial action of the waters.

The season, regulated by the authorities, for taking the waters, commences on the fifteenth of June, and terminates the first of October, an official medical inspector being resident during this period.

Accidental circumstances, some years ago, brought the waters of Capbern practically under the author's observation; and subsequent researches into their curative virtues, and repeated and successful trials in cases of disease, for the cure of which they had long enjoyed a renown, have urged on him the conviction that they form an important link in the chain of the Pyrenean mineral springs, and that they, independently, are a powerful agent in the relief of many symptoms, in the

treatment of which the other waters do not act at all, or with less decided and specific effect.

The author's comparatively limited experience has been much strengthened by that of Dr. Tailhade, the inspector, who most kindly furnished him with the details of many cases which had officially come under his care. To Dr. Tailhade's *brochure*, also, on the waters of Capbern, and that of Monsieur Latour, of Trie, he acknowledges his obligations for many facts and hints.

The climate of Capbern is altogether different from that of Pau and Bagnères de Bigorre. In the latter we have an atmosphere sedative to, and corrective of, arterial activity; and the diseases to which the natives are liable assume symptoms more of a congestive than of an inflammatory character; while in the former, the air is keen and stimulating to such an extent that, among the diseases which attack the native population, nine-tenths of them, at least, are marked with symptoms of high arterial action, and it is necessary, in their treatment, to have recourse to an unmixed antiphlogistic plan. The influence of the climate of Capbern in altering the lymphatic diathesis of the inhabitants of the villages in low and confined situations, who have removed to that place, has been a subject of observation and congratulation for ages: persons afflicted with goître being, after a few years' residence, without any other remedy than the change of air, entirely cured of this miserable disfigurement; and other maladies, consequent upon a highly leucophlegmatic temperament, are found to be equally modified and ameliorated, by a residence in an atmosphere so bracing to organic structure, and so stimulant of functional action.

The native of the district of Capbern is, consequently, muscular, active, and of a pure, unmixed, sanguine temperament. Unlike the Bearnois of Pau and immediate neighbourhood, whose equanimity it is difficult to ruffle, they are irritable to excess, and have a great tendency to display this in deed as well as word. Nevertheless, there are many good qualities found amongst them, and a strict probity practised in all their transactions.

The distinction, also, between the natives of the two districts, is observable in the state of the arterial circulation, as indicated by the pulse; while that of the inhabitant of Pau and neighbourhood is slow, equable, and soft, the pulse of the Capberner is quick, irregular, and full; and the influence of this state on the functions of the brain is equally symmetric, the latter being gay and quick of apprehension, and the former more reflective and calculating.

Before dragging the general reader into the details of analysis, or into the no less uninteresting relations with regard to the symptoms of disease favourably circumstanced for the action of the Capbern waters, we beg him to accompany us in a short excursive voyage of discovery in the neighbourhood of the springs. Perhaps we may there find some points of interest, tending to relieve the tedium of such a secluded abode, and to assure him, that after he has fairly cleared the gorge, which is no herculean task, there is a world beyond him, and that not very distant, full of active, ever-moving beauty; and even of scenes recalling associations of heart-stirring interest connected with the history of his own fatherland.

By an easy ascent, winding along the côteaux which

embrace the baths of Capbern, we emancipate ourselves from the still dullness of the gorge and its limited horizon; and a few minutes' walk brings us in view of the lengthened panorama of mountains, with smiling plains and intersecting streams. Near the spectator on the right, situated on a rounded eminence, is the ancient fort of Mauvezin in ruins; still further, on the same direction, is the famed L'Heyris Mountain, and the palomières of Bagnères de Bigorre, the scene of the *chasse* of the wood-pigeons, with a background of endless peaks; while in the lower parts of the landscape, in the foreground, groups of villages are dotted over the face of the country, affording a pleasing relief to the eye, after dwelling on the rugged and frowning majesty of the great Pyrenean chain.

Should curiosity excite the visitor to extend his promenade, he can direct his steps to the Chateau of Mauvezin, a mile and a half distant; to the Abbey of the Escaladieu, three miles further, on the high road to Bagnères de Bigorre; to Tournay, some four to five miles to the south-west; to Trie, twelve miles to the south; to Tarbes, thirteen miles off; and to Bagnères de Bigorre.

After traversing the small village of Mauvezin, we have, situated on an elevation facing us, the Chateau, the veteran remains of the exploits of the barons of the country in the days of feudalism, and which played an important *rôle* in the history of Bigorre. 'It merited,' says Froissart, 'its name of Mauvezin (*mauvois voisin*) during the period of its occupation by the English under the Black Prince'; for, to use the quaint French of this author, 'sur la rivière de Lisse sied une bonne grosse

ville fermée qu'on appelle Bagnères. Ceux d'icelle ville avoyent trop fort temps. Car ils estoyent guerroyés et harriés de ceux de Malvoisin qui sied sur une montagne.'

The Castle of Mauvezin was originally a dependance of the counts of Bigorre. Its original construction must be referred to a period very remote. In 1232, Bozon de Mathas gave it in pledge, and the Comte de Esquivat surrendered it, in 1256, to Roger Comte de Foix. This fortress was considered so strong, as to be impregnable by the instruments of military warfare then in use, and was, consequently, the terror and the *dangerous neighbour*, as its name implies, of the adjoining country. Nevertheless, the Duke of Anjou laid siege to it in 1373, and forced Raymond de l'Epée, the chivalrous lieutenant of the English, to give it up. The siege lasted six weeks, and the greatest bravery was displayed on both sides. Indeed, the besieged were forced to surrender, by the assailants having cut off the water which supplied their wells.

A continuation of the road to Bagnères de Bigorre for a few miles brings the stranger to the ancient Abbey of Escaladieu, situated in a lonely basin on the right bank of the river Arros, at the foot of the forest of Kersan. This religious establishment had been originally founded in the year 1236, by Forton de Vic, in the valley of Campan, between Grippe and St. Maria; but was transported, in 1242, to Escaladieu, and there established under the protection of the Counts of Bigorre, who continued to be its munificent benefactors.

The severity of its rules, and the rigid practice of austerities of the most mortifying description, acquired for the Abbey a high reputation; and the rich and poor,

the warrior and the sage, those, in fact, who were disgusted with themselves or with the external world, flocked here to find a common retreat, and to attempt, by penance and penitence, to avert the anger of Heaven, for sins chiefly of commission; while by the enthusiasm of the monks, institutions, branching from it, were established in other lands. The Abbots Durant and St. Ramond, of the Escaladieu, founded the renowned monasteries of Yergo, Hittero, and Calatrava, and were their first superiors. The monastery of Calatrava, in Spain, gave rise to the order of chivalry of that name, whose distinguishing badge, the white scapulary, was worn by them until Benedict XIII. gave them a dispensation to discontinue its use.

It was at the Escaladieu, where the narrative of the life and miracles of St. Bertrand, bishop of Comminges, was drawn up, and on which he was canonized by the Pope Alexander III.

Petronille, Countess of Bigorre, famous among other things for having *used up* five husbands, to adopt the quaint phraseology of a biographer, wishing to retire from the world, towards the close of her life, chose the Escaladieu as her place of retreat, where she died in 1251, after having made a curious will, where, in giving a detail of her debts, she makes mention, among other creditors, of a certain Vastel Gascon of Tarbes, to whom she declared herself indebted in the sum of eighteen sous, for a pair of shoes which she had bought of him, and had sent as a present to the Queen of England.

This ancient abbey has undergone the fate of all religious establishments of this class, and has now passed into private hands: a M. Nerac, of Bordeaux, one of the

few Protestants of Gascony, where Protestantism once raised her triumphant standard, has become the proprietor of this once stronghold of the most severe practice of Catholic orthodoxy. M. Nerac, has fitted up, with great taste, a portion of the building as a residence, while the remaining parts of it are now a ruin, full of interesting and pious associations. The chapel, however, still preserves some remains of its ancient sacred character, there being still found lingering within the hallowed precincts, some statues of saints; and some *morceaux* of the gothic architecture of the middle ages are evidences of what it must have been, and of the desecration it has undergone from ruthless time and more ruthless man.

To the south, excursions may be made in the direction of Trie, where, a few miles from the town, may be seen in the plain the ancient château of Bonnefont, with its flanking turrets; and a little further on, the château of Montastruc, both belonging to the period of the feudal times. The former had been, for a long time, the abode of the Marquis de Montespan, at the time when his wife was wantoning in the smiles of Louis le Grand. Near to this castle we are shown an old elm, in which is embedded an iron collar with a chain attached. The lightning having struck and rent the tree, brought to light this instrument of barbarian torture, which the elm had, perhaps ages ago, inclosed within its bark.

Proceeding further a few miles, we arrive at Trie, situated on the river Baïze Darre, a fortified town in the feudal times; for we still find vestiges of the gates, the turrets, and ditch. The ruins of a monastery, long ago the abode of Carmelite monks, are visited as objects of great interest, as having been the scene of a terrific

tragedy connected with the wars waged by the Catholics against their Protestant brethren. Montgomery the intrepid and ruthless chief of the latter force, having demolished the monastery, after having burned their records, hung the prior before the door of the chapel and threw the other inmates, to the number of twenty, into the wells of the cloister. The chapel and the wells still remain; the former, with its vaulted roof, so justly admired, being now desecrated as a theatre.

One may vary the ride to Tournay, which is pleasantly situated on the river Arros, where there was formerly a convent founded by Raymond de Cordeilhac, in 1625; and some miles further on is Tarbes. In another direction over the Landes of Lannemezan, the keen air may be wooed, as it passes over this sterile waste, unmodified by sheltering groves or warming vegetation.

To the lover of field sports there is ample recreation The Landes are plentifully supplied with red-legged partridge, without much fatigue to the sportsman, and there is no one to say 'What doest thou?' The plain of Lutilhons, with its fields of millet, offers a rich supply of quails; and there is not a day in the month of September in which a sportsman, at all alive, may not return with his game-bag well filled. Hares are very abundant, and greyhound coursing in great repute. We find here also in the season, great numbers of birds of passage, such as the wild duck, woodcock, lapwing, plover, curlew, bustard, but above all, quail and wood-pigeon. In the river Arros the angler will find remunerating sport.

After this cursory history of Capbern and its environs, we now proceed to speak of the qualities, physical, chemical and medical, of its waters.

The physical properties of the waters consist in being perfectly limpid, inodorous, of a sweetish taste, and communicating to the throat a sensation of dryness. Left exposed in an uncorked bottle for months, the water deposits a great quantity of a flocculent substance, without its appearing to be sensibly changed. Its specific weight, compared with that of distilled water, is 1.005. A thermometer plunged in the water of the source during half an hour, indicated a temperature of 76° of Fahrenheit, that of the atmosphere being 64°. The water flows in great abundance; and its volume is not influenced by any meteorological phenomena, it remaining the same at all seasons of the year; and there is a constant and continued disengagement of gas. The stone on which the water falls shows a slight sediment of a yellow colour.

As to the chemical properties of the Capbern water, Messrs. Rosier and Latour have analysed it, and have found that it contains, as to gaseous principles, carbonic acid, oxygen and nitrogen, and of fixed substances, certain organic matter, muriates of magnesia, of soda, and lime, sulphates of magnesia and soda, subcarbonates of magnesia and lime, carbonates of iron and lime.

According to M. Longchamp, the Capbern waters contain carbonic acid gas in great abundance, carbonate of iron, and a very small quantity of sulphate of magnesia. M. Save, on the contrary, affirms that they do not contain the smallest portion of carbonate of iron. He gives the following analysis*:—

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* *Manuel des Eaux Minérales*, par PATISSIER, p. 485.

WATER A QUART.

Carbonic acid gas	indeterminate quantity.	
Sulphate of Lime	grains.	0.92
Sulphate of Magnesia	do.	0.59
Chloruret of Magnesium	do.	0.01
Carbonate of Lime	do.	0.20
Carbonate of Magnesia	do.	0.01
Loss	do.	0.01
		1.74

In this analysis we find an illustration of the doctrine laid down in an earlier portion of this work, when treating generally of the therapeutic action of mineral waters, viz., that the quantity of chemical ingredients found in the composition of such waters, does not, by any means, solve the question of the effects produced by them on the human system. It is quite certain, that ten times the amount of the same substances, discovered by analysis in the Capbern waters, may be artificially combined in any ordinary menstruum, and taken internally: still this combination will not only not produce the entire effects usually resulting from the real waters, but scarcely any one of these effects. It is evident, therefore, that we must seek for some other solution than that which mere analysis supplies; and in this case it is not improbable that the peculiar powers of the waters may depend upon some vegetable principle beyond the reach of our analysis to discover. The markedly stimulating influence which the Capbern waters exert upon the uterus, leads us to a conjecture, as to whether this may not depend upon the same or some analogous principle, which gives to the ergot of rye its power over the functions of this organ; and whether the flocculent substance, deposited by the water after the lapse of time, may not be a new

combination of some subtle vegetable entity which had eluded previous analysis.

In the present state of chemical science, however, we must be content with conjecture, and be satisfied, for our guidance, with the rules which may be inferred from an examination of the results produced by the use of the Capbern waters in different states of diseased action. And this, after all, is the knowledge that is most practical and useful.

Although the Capbern waters have been and are administered with good effect in all congestions of the brain, lungs, large vessels near the heart, liver, and spleen, and in chronic affections of the mucous membranes, accompanied with morbid and increased discharges, and in simulated consumption in young females, where we frequently find emaciation, hectic, oppression in the region of the chest, cough and even sanguineous expectoration, without the lungs themselves being organically affected, still, in our opinion, their proximate mode of action consists in their exciting a more vigorous circulation in the organs which have their site in the lower abdominal and pelvic region;—in the uterus in woman—and in the hemorrhoidal system of vessels in man;—and in both sexes an activity in the functions of renal secretion.

There is, as has been already observed, a phenomenon with regard to the action of the *sulphurous* waters of the Pyrenees, which is, that they act centrifugally on the circulation, from the centre to the surface, and even have the power of bringing hidden things to light, such as balls, pieces of wadding, cloth, or exfoliated bone, however deeply they may be lodged; on the other

hand, the saline waters of Capbern exert an influence vertically on the circulation, by determining congestions of blood from the superior organs of the body towards the inferior, and creating safe outlets from the uterus, kidneys, hemorrhoidal vessels, and mucous exhalants in the lower bowels.

It will be seen, that waters possessing such unique properties are entitled to take an important rank among thermal springs. In the case of persons under the pressure of advancing years, the irritability of whose leading organs has been worn out by sedentary pursuits, over-stimulation, or by residence in hot climates, where congestions of the brain, liver, and lungs, are either constantly present or alternate with each other, a remedy which has a strong inclination to relieve those weakened structures of blood, difficult to be circulated and consequently oppressive to the powers of life, must be hailed as a boon of value.

In all countries where the climate, being of a sedative nature, by reducing the vitality of important organs, produces congestion in them, we find, particularly among the men, that hemorrhoids are hailed by them with great satisfaction, as a proof that nature has established this *depôt*, from which in case of a necessity threatening to life, an overcharged state of the circulation may be vicariously relieved.

The waters of Capbern, then, where the necessity exists, produce a congestion of the hemorrhoidal vessels, not by any irritating process, but by some determining property of the waters, of which we can only judge by their effects.

The Capbern water is taken both internally and by

bath and douche. The dose of the waters is from two to five or six tumblers, taken early in the morning, using exercise between the divided doses. Should the water not readily act on the kidneys, it should be taken more sparingly until this secretion be coaxed into more abundant action. It is remarkable that the waters in Bath produce the same effects on the system, although in a modified degree, as taken internally; the one materially assisting the other. The douche, also, applied to the lower part of the abdomen, and to the lumbar portion of the spinal column, is a valuable auxiliary.

The author has been in the habit, in some complications of disease, of availing himself of the adjuncts of pharmacy. He has found minute doses of iodine produce good effects, where, with other symptoms, there were present glandular swellings; and in the case of hardened enlargement of the liver, he has combined a mild mercurial preparation with advantage.

There is an important section of disease, or rather diseased liability, for the cure of which these waters deserve to be lauded *par excellence*, and that is, in congestion of the brain, which in persons of sedentary pursuits, and of advancing years, threatening apoplexy, and generally where the vital powers of the circulating machinery of the brain and other noble organs have been impaired from whatever cause. So decided are the effects of the waters in this condition of the circulation, that a friend of the author's, an M.D., who suffered from cerebral congestion, described the effect of a dose of the waters upon him to be, as if he felt the circulation of the blood to undergo a downward course, the head and chest being relieved, and a sense of fulness and tension experienced

in the lower abdominal pelvic and renal regions: and so convinced is a French gentleman (a man known as a *diplomat*) of their efficacy in apoplectic predispositions, that he was for many years an annual visitor, and had expended a large sum in proclaiming their virtues to the world, purely from a philanthropic motive. Many years ago he had suffered from an apoplectic seizure, a repetition of which he felt had been warded off by the use of the waters of Capbern, of which, from the many cases he had seen cured, he was the interesting chronicler.

CHAPTER XXV.

ROUTE FROM PAU TO BARRÈGES.—OBJECTS OF INTEREST ON THE ROAD.—ROUTE FROM BAGNÈRES DE BIGORRE TO BARRÈGES, BY THE TOURMALET.

WE now proceed to discourse of Barrèges and its mineral springs; a place, to which much of the fame of the Pyrenean sulphurous waters may be traced; and to which the other watering-places may, without disparagement, confess themselves indebted for the notice they have attracted, and the rank they now hold among European thermal sources.

But before plunging *in medias res*, we feel ourselves bound to conduct the stranger thither, and by some description of the road, to endeavour to lessen the tedium of his short journey.

The distance from Pau to Barrèges may be computed at forty-seven English miles, in a south-easterly direction, and the road, which is an imperial one, is as good as the average roads in England, with the exception of some severe ascents, as we approach Barrèges, in the gorge of Pierrefitte and the valley of the Bastan. Every second day there is a diligence from Pau, which makes the journey betwixt the time of an early breakfast and a late dinner. Commodious voitures, capable of containing six or more persons, may be hired at twenty francs per day; a convenient and agreeable mode of travelling, as it affords an opportunity of proceeding more leisurely, or of stopping to examine any antiquity or fine point of

scenery occurring on the road. By posting, which is well arranged, Barrèges may be reached in a few hours.

The road from Pau, for many miles, displays nothing worthy of remark, except the high degree of agricultural cultivation observable throughout, and the comfortable aspect of the population and their abodes. These latter are grouped into villages, which, one after another, line the road, and remind one of a similar state of things throughout the Vascongada provinces of Spain, where an analogous patriarchal race, the sons of the soil, congregate into masses for mutual protection and solace. This arrangement of the inhabitants has produced in each village in Bearn, or at least between those situated at some distance, a feeling of septship, regulating their intercourse, particularly in the important affair of marriage; persons being rarely found to contract alliances of this nature out of the pale of their own immediate districts.

As, at each step, we approach nearer to the mountains, we perceive them, one after another, developing themselves; and some starting forth in strong and separate identity, in all the luxuriance of foliage, which, at a greater distance, was absorbed in one prevailing tint, forming, to all appearance, a severely compacted mass. The first and most prominent object, independently of scenery, is the Château of Coarraze, twelve miles from Pau, where Henri Quatre spent his boyhood, which we have already referred to at some length in an earlier part of this work.

Three miles further on, we arrive at Estelle, famous far and wide among the natives of Bearn and Bigorre, for the Calvaire in its neighbourhood, to which countless

masses, once a year, make a religious pilgrimage. Here also is the College of Betharan, for the education of priests, most romantically situated; and the traveller will be much struck with the appearance of a bridge, which crosses the Gave at this point, for the adornment of which man has done as little as possible, and nature, by the simplest means has done much.

According to some authorities, Betharan had the honor to derive its name from a valley bordering on the Jordan. Gaston IV., anxious to perpetuate the souvenir of his expedition to the Holy Land, and finding in the hill of Betharan a resemblance to Calvary, raised there, at short distances, chapels, which represent the principal scenes of the Passion of our Saviour, and placed three crosses on the summit. The revolutionary whirlwind destroyed these monuments of the piety of the illustrious Viscount of Bearn. Later, when religion again blessed the land with its smiles, and her altars were restored, statues in wood, rudely carved and ridiculously grotesque, replaced the ancient stations. At the present day these also have disappeared, and bas reliefs, the work of a distinguished artist, adorn these chapels; and the stranger now can admire, at the foot of the Pyrenees, a series of works which more than one master of the art would not disavow.

There are others who give to the valley of Betharan a name less noble, but quite as romantic. It is said, that a young peasant girl of the mountains fell into the Gave, and was on the point of perishing, when she made a vow to the Virgin. The current then conveyed to her a branch, which she seized, and she was landed safe and sound on the bank. The young girl on her knees addressed a

prayer to the Virgin, and offered up to her the beautiful branch, or, in the dialect of the country, her *Bet haran.*

About a league from Betharan, at the foot of the mountain, we find one of the most curious objects which the Pyrenees contain; a magnificent grotto, which not long ago was completely unknown, even to the people of the country. Nearly twenty years ago, the entrance to it was discovered by accident; and since then it has attracted many visitors. The stranger who passes by Betharan ought not to omit exploring this curious specimen of nature's freaks; and having once seen and admired this lion of the country, he will not regret having stopped his journey a few short hours in this beautiful locality.

Here we may be said to be, at last, at the feet of the Pyrenees; and the Gave, of which, since leaving Pau, we have had many furtive glances, now runs, clear as a precious stone, close by the roadside, reflecting the shadows of the lofty mountains and of the luxuriant foliage which everywhere lines its banks.

Nearly midway between Betharan and Lourdes, we find St. Pé, a small town, in which there was a monastery of Benedictines, founded by Sance Guillaume, Duke of Burgundy. It is not of much importance in itself; but interesting as having been the cause and the scene of bitter religious feuds, for ages, caused by overreaching priestly ambition. In the year 1032, a monastery was founded in this place, whose history, could it be here told, would deeply enchain the reader's attention. After many and varying accidents, however, Montgomery, the Protestant leader, ordered the church to be burned:

nevertheless, even to this day, the old monastery remains in tolerable repair, and is fitly inhabited by ecclesiastics, who devote themselves to the education of youth.

From this place we continue our journey to Lourdes, six miles further, where the mountains may be said to commence, or at least where the first practicable entrance into their interior occurs to the traveller *en voiture* bound for Barrèges or Cauterets.

The Castle of Lourdes occupies a commanding position. Situated on an eminence, it is master of the town, as well as the gorge which leads through the valley of Argeles to the higher passes of the Pyrenees. The town, like many others in this part of France, is one of its most ancient cities; for, already fortified in the days of Julius Cæsar, it served to strengthen the Roman power. A square tower and certain walls and fortifications, unquestionably of Roman construction, bespeak its antiquity.

The Castle of Lourdes,* after many changes of masters, was annexed, as belonging to the county of Bigorre, to the crown of France by Philippe le Bel, but after the battle of Poictiers, it came into the possession of the English. The Black Prince, who had arrived at Tarbes with his spouse, the Princess of Wales, had confided the garrison of the Castle of Lourdes, to the command of Pierre Arnaud of Bearn. About ten years afterwards, he conferred the government of the province on Jean, Lord of Grailly. This so exasperated the Bigorrese, that the Seigneurs and the chief towns revolted from the English, and gave in their adhesion to the king of

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* *Album des Pyrénées*, par FOURCADE.

France. They joined themselves with the Duke of Anjou, brother of Charles V,; and greatly facilitated his conquest of the greater part of Bigorre; but the English, still masters of the fortresses, had a great superiority over their enemies. The Duke of Anjou, having become master of the Castle of Mauvezin, immediately laid siege to that of Lourdes. His efforts, however, failed against the courage and skill of its brave defender; and being most desirous to possess himself of this stronghold, he had recourse to Gaston Phœbus, Comte de Foix, cousin of Arnaud de Bearn, its governor.

He promised him restitution of the county of Bigorre, of which Gaston pretended to be the heir, if he would order his cousin to Orthez. Before leaving Lourdes, however, he invested his brother Jean with the command of the place, and made him swear to remain faithful to the King of England. Gaston Phœbus received his cousin in a magnificent manner, and loaded him with gifts, and on an occasion said to him, 'The defence of Lourdes, garrisoned by the Bearnois, exposes me to the anger of the Duke of Anjou; surrender therefore the place to me.' 'Count,' said the loyal chevalier Arnaud, 'I am poor, and I am your kinsman; but my allegiance is pledged to the King of England, and to him alone shall I surrender it.' Upon this Gaston, losing all command of himself, drew his poinard and stabbed the chevalier. 'Ah!' exclaimed he, 'you have not acted with knightly faith; you have invited me as your guest, and you slay me.' Gaston, far from repenting of this foul assassination, ordered his unhappy victim to be cast into a dungeon, where he perished of his wounds. This crime was useless to the Duke of

Anjou; for Jean, brother of Arnaud, victoriously repulsed the hostile forces, and obliged the Prince to raise the siege. Later, at the period of the sanguinary struggle between the Catholics and Protestants, Montgomery attacked Lourdes. He took the town, but could not render himself master of the Château.

In still later days, the Castle of Lourdes has been used as a prison for those taken in battle, and even during the wars of Napoleon, Englishmen have been made acquainted with its inconveniences. Among whom we may mention the late Lord Elgin, a detenu after the rupture of the peace of Amiens, while on his way from Constantinople, where he had been ambassador, to England.

At Lourdes we strike at once into the Pyrenees. Moving directly to the south, on entering the gorge which guards the valley of Argeles, a drive of two miles brings us fairly into the valley. For those who have seen this scene, or who intend to see it, description is supererogatory, as every one has judged, or will judge, for himself. And for those who have not seen it, nor intend that gratification, we will merely say, that it is the only valley in the Pyrenees which we have had an opportunity of visiting that, we think, has not been overpraised.

At the bridge which crosses the Gave, a mile and a half from Lourdes, we leave to the left the valley of Castelloubon, so called from the castle it formerly possessed, and whose ruins are still to be seen: on the left bank, on the summit of an inferior range of mountains, we have the ruins of the castle of Géii; and nearer to the village of Argeles, situated eight miles from Lourdes, on an isolated hillock commanding the valley, the tower of Vidalos. Each of these castles has its individual

history and legends. As remains of the feudal times, without our even knowing their history, they are subjects full of imaginative speculation; and not the less so to a Briton, when he recollects, that many hundred years ago his countrymen had held wassail within these now mouldering walls.

Leaving Argeles, we pass to our right the Abbey of St. Savin, well worth a visit, whose foundation dates from a very remote period. On the left of Pierrefitte, three miles from Argeles, we have, on the opposite side of the valley, another feudal remain, whose ruins show that the original building must have been one of considerable dimensions and consequence.

At Pierrefitte there are two mountain-passes; the one on the left leading to Barrèges, the other on the right to Cauterets. For the present we take the pass to the left, viz., Lavedan, which is four miles long, and opens upon the valley of Luz, with St. Sauveur half a mile to the right. A steep ascent of four and a half miles finishes the expedition from Pau to Barrèges.

Should the stranger be at Bagnères de Bigorre, and desire to proceed to Barrèges by the shortest and most picturesque route, that by the Tourmalet is practicable after the middle of June. This mountain is 7,000 feet above the level of the sea; and ere we reach its base, we have to traverse the valley of Campan, and the village of Grippe. The distance from Bagnères to Grippe is nine miles, and can be done without difficulty in an hour and a half. We then commence the ascent; and numberless cascades, thundering down their steep beds, meet us with deafening din. Here also we find the infant river Adour, cradled amidst the wildest majesties of nature.

Although the ascent may seem difficult, still it is really not so, being frequently made, even by timid females, in two hours. Should the day be fine, the fatigue will be well repaid. The Tourmalet, from its advanced position in the Pyrenean chain, commands an immense perspective of champaign country to the north, west, and east, taking in Bearn, Bigorre, and Languedoc; while, from its elevation, it looks down on a troubled ocean of granitic and calcareous waves, which seem as if they had been suddenly petrified by the hands of their Creator. The loftiest peaks are here found either standing out in hard relief against the sky, or from a slight haze of the atmosphere, they appear filmy and buoyant; at other times no object, at the distance of a few yards, can for days be recognised from the thick mist, except when suddenly, and then only for a few seconds, the *brouillard* shall partly clear away, and through its semitransparent folds, the scene assumes an exaggerated and mysterious aspect. In the clear sunshine, on the one hand, we see an expanse of quiet cultivated beauty that, from its vastness, the eye cannot take in; and, on the other, the greatest contrast which imagination can conceive, of dilapidated serrated masses cleaving the air, without roundness of form or mark of vegetation, and here and there an everlasting glacier, projecting its prismatic rays.

The distance from the top of the mountain to Barrèges is easily accomplished in an hour and a half; thus, with good mountain ponies, the excurson from Bagnères dc Bigorre to Barrèges may be done in five hours and a half; and time passes so quickly amidst such scenes that it does not seem to be an affair of three hours.

CHAPTER XXVI.

BARRÈGES.— HISTORICAL SOUVENIRS OF BARRÈGES.—STATE OF ITS ESTABLISHMENT OF BATHS. — ANALYSIS OF ITS WATERS. — CLASSES OF DISEASE TO WHICH THE PROPERTIES OF THE WATERS ARE SUITABLE. — STATISTICS OF RESULTS. — ST. SAUVEUR — ANALYSIS OF ITS WATERS.— THEIR MEDICAL PROPERTIES.

ALTHOUGH the stranger has heard much of Barrèges, and although it has been introduced upon the stage with somewhat of a flourish of trumpets, yet if he expects to find a fine town and pleasantly situated, he will be rather disappointed on a nearer acquaintance. Let him then picture to himself a village, 4,000 feet above the level of the sea, composed of one street,— built on the shelf of a mountain, partly natural, partly secured by art, overlooking a noisy torrent, and surrounded by bleak mountains, usually canopied in mist, — and this is Barrèges. It is pretty evident, therefore, that the inducements must be cogent ones, which could neutralise the disadvantages of so ungenial and *triste* an abode.

The French Administration of War established, several years ago, a military hospital, where 300 or 400 sick officers and soldiers go every year to take the waters, and to get cured of those infirmities which they have contracted in the service of the state. These, joined to civilians who visit this watering-place, make up during the season from 12,000 to 15,000 persons more or less

ill, for no one would ever dream of going to Barrèges for pleasure.

One finds there apartments, certainly not furnished with much luxury, but still clean and convenient. There are several hotels, where one is well served; table d'hôtes, restaurants, cafés, occasional concerts; balls for the invalids, who are not too much *hors de combat*; a club, where one can play a rubber and read the journals; in fact, all that can make the time pass agreeably in a place, where Nature appears in her rudest garb.

A part of the town, however, from its position in reference to a neighbouring mountain, is annually subject, during the winter, to be overwhelmed with avalanches, so that there is a gap left at this spot of a hundred yards, filled up in summer with houses of wood, but removed at the end of the season. Indeed before the winter sets in, the proprietors entirely dismantle some of the houses, even to the window sashes, and remove themselves into the plains, when the fashionable season for another description of visitors commences, viz., the bears and the wolves.

Barrèges, unlike most of the other thermal establishments, does not throw its pretensions far into antiquity; although there are local legends, which place a knowledge of the healing virtues of its waters as far back as the tenth century. It is, undoubtedly, to the age of Louis XIV. that we must refer the origin of a substantial reputation. The Duke de Maine, son of that monarch, having been sent to Bagnères de Bigorre, under the care of Madame de Maintenon, in search of a cure for an affection which had defied the skill of the capital, and having experienced but small relief from

the waters, was recommended to substitute those of Barrèges. At this time, no road led to this wild spot; but in order that the illustrious patient might be transported, the track over the Tourmalet, which still exists, was made. A frail low thatched cottage was the only shelter in the place, where now spacious mansions, and a large military hospital, afford accommodation to all classes. It is said, that here Madame de Maintenon relieved her *ennui*, by composing the letters which have become so famous.

Louis XIV. was so surprised with the complete cure effected on his son, who was lame from a retraction of the right leg of long duration, that he ordered the construction of a new bath, to be called 'le Bain de Maine;' and the reputation of the Barrèges waters spread rapidly, and is now so well established, that it is frequently impossible during the season to procure a bed *en passant*, as occurred to the Author and a friend on arriving wet to the skin from an excursion over the Tourmalet, they having been even obliged to breakfast in a public passage.

The amusements consist in balls, promenades, and excursions. The former take place once a week, or even more frequently; the facilities for promenades are very few; but, to make up for this, the excursions are various and full of interest. We may instance, the ascent of the Pic de Midi de Bigorre, which is made with tolerable ease from the Barrèges side, and is besides so much nearer than that of Bagnères, that one may more readily choose a clear day and be more certain of its continuing so. Then, there is the Pic de Bergons behind the town of Luz, from the summit of which we see, among a

thousand other splendid morceaux of scenery, the most perfect *coup-d'œil* of the *Cirque of Gavarnie* and the *Brèche de Roland,* a panorama which well deserves of itself a pilgrimage of a thousand miles — then the excursion to Gavarnie itself about twenty miles off; — the castle of St. Marie at Luz, one of the last possessions of the English in this country; — the ancient fortified church of Luz, founded by the Knights Templars; — and the beautifully situated watering-place, St. Sauveur, half a mile from Luz, where one finds, at least, a less raw and piercing air than at Barrèges.

The waters of Barrèges* may be divided into three principal sources, according to their states of temperature. The first and most abundant is named the *hot source;* that of which the temperature is inferior, is called the *temperate*; and when it is still less, it is called *tepid.* The three sources supply seventeen baths, two douches, and two large basins, of which, one is destined for the use of the military; the other for the poor. There is also a source reserved for the use of the drinkers.

The principal baths are, the Bain de l'Entrée, Grand Bain, Bain du Fond; de Polard, and de la Chapelle.

The waters of all these sources are clear, limpid, and exhale an odour of rotten eggs; their taste mawkish, nauseous, and oleaginous. Their surface is covered with a thin pellicle, which gives them an unctuous appearance, and they deposit this glairy substance on the side of the baths, and wherever the waters pass, in considerable quantities. This is the substance called barrégine or glairine, which we have elsewhere described.

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* *Manuel des Eaux Minérales,* par PATISSIER, p. 112.

The quantity of water, which these springs produce in twenty-four hours, would be sufficient to supply three hundred baths and fifty douches. The temperature of the different waters, is as follows:—Polard 101°, the Temperate, 92°, Le Fond, 98°, La Douche, 110°, L'Entrée, 107°, La Chapelle, 84°, La Buvette, 107°, Les Piscines, 95° to 97°.

Several chemists have analysed these waters; but we owe to Monsieur Longchamp, the analyses most to be depended on. The water of La Buvette was that experimented on.

WATER (A QUART).

Nitrogen gas	quart	0·004
Sulphuret of Sodium	do.	0·042100
Sulphate of Soda	do.	0.050042
Chloruret of Sodium	do.	0·040050
Silex	do.	0.067826
Lime	do.	0·002902
Magnesia	do	0·000344
Caustic Soda	do.	0·005100
Do. Potassa		traces.
Barrégine		do.
Ammoniacum		do.

M. Longchamp has also given the quantity of sulphuret of sodium, found in the other sources, viz., in a quart of the water.

Grand Douche	0·0498
Bain de l'Entrée	0·0393
Bain du Fond	0·0270
Bain du Pollard	0·0270
Source Tempérée	0·0245

Having already, at great length, discussed the medical properties of the sulphurous waters, and their therapeutic action in disease, we have now only to point out how

these principles operate in practice; and to this end, we shall give, taken from the experience of those who have paid a close attention to the subject, the results under several generic heads. The authorities on which we base our *resumé* are the Bordeus, who accumulated the experience of 2000 cases; and not merely did so, but philosophised upon them, and derived valuable general principles as their reward, while a grateful posterity presses forward to honour the patience and science which supported and illumined them in their difficult task. Our other authorities are—Dr. Pagès, the present able Inspector of Barrèges; Dr. Ballard, Surgeon in Chief of the thermal hospital there, who has published a useful work on the waters; and Monsieur Gasc, appointed by the Minister of War, in 1829, to superintend the military hospital, who has also favoured the public with the results of his practice.

Before enumerating the diseases for which these waters are suitable, *par excellence*, we will quote the opinion of the late Mr. Carmichael, the well-known Irish surgeon, whose views with regard to the waters of Bagnères, and their action on disease, we have already given at some length. He had derived so much advantage from the use of the Barrèges waters for the sciatica, under which he grievously suffered, that we have thought it useful to give his statement on the subject. 'After having,' says he,* 'sojourned a month at Bagnères de Bigorre, I proceeded towards the mountains of Barrèges, which is

* Not having an English version of Mr. Carmichael's paper, we are obliged to translate the passage from the French edition of this book back into English, which will account for its not being verbally correct.

situated at 4,190 feet above the level of the sea, while the former establishment is not higher than 1,219 feet. I was obliged to wait fifteen days at Barrèges, before the inspector could give me a bath, so great was the number of persons who were seeking after the same favour, although they only allow half an hour to each individual, and the invalids succeed each other night and day, without interruption, waiting with anxiety their turn to get near the source of health. In the interval I took hot baths, at a temperature from 98° to 99° Fahrenheit; and under the influence of this therapeutic agent, my state sensibly ameliorated. My turn to take the douche came at last, and I was given the choice between a mild one and a strong one. I decided to take the last. Eleven o'clock at night was the time fixed on for me, and I esteemed myself very lucky to be able to obtain one even at that inconvenient hour. At the time appointed a *chaise à porteur* came to take me from my lodgings, and transported me in a few minutes to the douche-room. There I found myself in a cell, or dungeon, which appeared to me dug out of the rock, and which was lighted by a miserable lamp. The room was so heated by the sulphurous vapour, that for a moment I was nearly suffocated. I undressed then as quickly as possible, and was assisted in this operation by an old, ill-favoured bathing-man, who seemed the natural inhabitant of a place filled with fire and brimstone. As soon as I was stretched on a mattrass, which was placed on a plank, he turned a cock, raised about ten feet from the ground. The water, which was very hot, spouted out with force; the shock which I experienced the first time was so violent, that I could scarcely keep myself from

crying out. However, I took courage and supported the jet during a quarter of an hour; that is, according to what my bather told me, the longest time a person can support the douche, which does not last usually more than ten minutes. In changing my position, I received the water successively over the whole trunk of the sciatic nerves, and over the branches which had been so affected with pain. This exercise seemed to me very fatiguing and very heating, and I was obliged to have recourse to the services of my bather to put on my flannel dress, which I had had the precaution to furnish myself with. After this operation, the same machine conveyed me back to my bed-room, where, taking off my flannels, I went to bed between the blankets. Some minutes afterwards, I was covered with a profuse perspiration, which lasted four or five hours, and which I encouraged by warm drinks. As soon as the perspiration left me, I took off my flannel dress and put on another of the same kind, and remained in bed several hours more. If I give all these futile details, it is because they may be of use to persons who go to Barrèges.

'I continued the use of the douche every day, or rather every night, for two weeks, during which time my pains increased. I suffered from thirst, an acceleration of the pulse, and other symptoms of simple fever. It is the ordinary effect which these waters produce. Indeed I am at all not surprised that they should produce constitutional disturbance, when I think of the irritation which the douche causes, not only to the cutaneous capillary vessels of the part on which it falls, but also over the whole surface of the body, which becomes of a burning red under its influence. Such a regimen con-

tinued for fourteen nights following, would pull down the most robust man; as for me I had got very much thinner at the end of this treatment. When the douche does not excite perspiration, it is looked on as a very unfavourable sign; and I am sure that in such a case its use must produce pernicious results.

'After this sketch of the effects of the waters of Barrèges, one can comprehend that it is a very powerful agent, capable of producing great good or great evil. When there is an inflammatory action present, *I believe that these waters must be very dangerous*; and I am persuaded that three months earlier I could not have borne them. In the case where there is an inflammatory affection of the head or chest, the use of the douche is accompanied with the greatest danger; and during my short stay at Barrèges, there was more than one case of apoplexy and hæmoptysis. Many invalids affected with paralysis frequent this establishment; but as there is also reason to suspect in all affections of this kind the existence of a latent cause, the douche ought not to be had recourse to but with extreme precaution.

'The great efficacy of these waters for the exfoliation of old gun-shot wounds has been so fully recognised by the government, that they had caused several years ago a military hospital to be built, where are sent, three years' running, patients, whose state is appropriate to the nature of the springs. If after this trial the patient is not rendered fit for service, he has a pension granted to him. It appears that those old wounds, submitted to the influence of the waters of Barrèges, get larger from the beginning of the treatment, and often those even which are healed break out afresh. This phenomenon doubtless arises from excitement of the absorbent

system, of the destruction by ulceration of the bad granulations, or still more from the feebleness of the cicatrices in the case where the cure has been imperfect. But after these first symptoms, the waters perform cures truly extraordinary in old wounds, which have resisted every other kind of treatment. The wounded soldiers bathe in a large pool, which may contain twenty persons. They are conducted by divisions, the one after the other, and each division remains an hour in the bath. Among the number of persons who have been cured of grave gun-shot wounds, we must mention our countryman, General Crawford, who after having passed three successive summers at Barrèges, was perfectly cured. From gratitude, he gave during his life annually £50 for the benefit of the poor who frequent that establishment, and since his death his heirs have continued the same allowance.'

The following being the diseased conditions of the system, more particularly benefited by the waters of Barrèges, we shall direct our attention entirely to them, namely — 1. Diseases of the skin, with their varieties,— squamous, pustular, papular; 2. Affections of muscular, fibrous, tendinous, and membranous tissues, comprising, rheumatalgia, lumbago, sciatica, articular rheumatism, muscular retractions, anchylosis, white swelling, articular enlargements; 3. Deep-seated irritation, arising from the presence of foreign bodies, collections of matter, carious bones; 4. Scrofulous and ill-conditioned sores, and fistulous ulcers.

1. *Squamous eruptions.* The symptoms of this order of cutaneous diseases depend upon a morbid action, originating betwixt the true and false skin, and which shews itself in an exfoliation of the latter in the form of

scales, more or less aggravated and inveterate. This is most commonly a local affection of the skin, and but rarely connected with marked constitutional symptoms, but depending more on an altered state of action in the exhalant vessels. These diseases show very varied appearances, ranging from the separation from the surface of the body of a dry cuticular powder, up to an exfoliation resembling the scales of a fish. In the different forms of lepra and psoriasis, the mineral waters of Barrèges, taken internally, and by bath and douche, are most powerful auxiliaries of cure. In the milder cases, the tepid baths will often suffice, if accompanied with some alterative ptisan; but, where the disease is more inveterate, and suspected to depend on, or to have its action complicated by some constitutional cause, preparations of mercury and arsenic, combined with the waters, rarely fail in producing great amelioration, if not cure. It is a property of this, as of all other sulphurous waters, that they increase the medical efficiency of the remedies which are usually prescribed for diseases of a chronic character. In 260 cases of this class treated at Barrèges during five years, the following is the result:—136 cured, 85 received marked alleviation, 33 showed no appearances of change, and 6 were aggravated.

2. *Pustular eruptions.* In chronic ecthyma and its varieties, impetigo in its different forms, and mentagra, the waters of Barrèges, under a judicious system of constitutional treatment, produce good effects. Dr. Ballard,* on this subject, makes use of the following

* *Essai sur les Eaux Thermales de Barrèges*, par J. G. Ballard. Chirurgien en Chief de l'Hôpital Thermal de Barrèges, p. 179; from which we have taken some of the statistic facts.

observations:—'It is in this kind of alteration of the skin, that a general system of treatment ought always to accompany the use of the waters of Barrèges. When these affections develop themselves in persons of a sanguine temperament, blood-letting ought to precede all other means; the baths ought to be employed at a temperature not too elevated; for even thus administered, the waters often produce an excitation, of which it is difficult to prevent the development, but which it is absolutely necessary to check at an early stage. When this excitation occurs, the most convenient means are, in the first place, to suspend the baths, and to apply lotions and emollient cataplasms, and to give cooling beverages. It is not until the diminution of all the inflammatory symptoms that the bath ought to be again employed. The same means are to be used, if on a second trial, the same inflammatory phenomena shew themselves; for not until the symptoms have thus undergone an alternative action, more or less frequent, can we hope to see these maladies disappear.' The mentagra is that which offers the greatest resistance to the beneficial action of the waters. In 76 persons affected with the two first varieties of cutaneous disease, Dr. Ballard says that 36 were cured, 30 sensibly ameliorated, 6 shewed no change, and 4 were so aggravated as to oblige a suspension of the treatment.

3. *Papular eruptions.* In the different forms of lichen and prurigo, the good effects of the Barrèges waters are not so decidedly evident. It has been observed, that whatever good consequences have resulted in these affections, have been greatly owing to a combined plan of medical treatment. It is the opinion of those well

informed on this subject, that the waters of Cauterets are better suited to this class of cutaneous disease.

The following is a general *resumé* of the practice of Dr. Gasc, in cutaneous diseases treated in 1829 at the military hospital at Barrèges. In simple herpetic affections, the proportion of persons cured to those under treatment were 31 to 51; in pustular eruptions, 10 to 20; in furfuraceous eruptions, 14 to 18; in squamous affections, 7 to 10; in syphilitic, 1 to 5; in mentagra, 1 to 2; the only case of psoric disease under treatment was cured.

Dr. Pagès, the medical inspector, thus expresses himself relatively to the influence of the Barrèges waters on diseases of the skin in general:—'In chronic affections of the skin, whatever may be their form, squamous, papular, pustular, tubercular, vesicular, I have seen also cases of eczema cured which had resisted modes of treatment the most varied and energetic, preparations of arsenic, etc., etc.'

These few words are extracts of a letter which Dr. Pagès has been so obliging as to write to the author, in answer to certain questions which he had submitted to him, as to the influence of the Barrèges waters in different diseases. We shall briefly give his opinion on the effects produced on the different diseases treated.

The maladies of the muscular, fibrous, tendinous, and membranous tissues, are generally ameliorated by the use of the Barrèges waters, provided they are not of an acute type, and in a nervo-sanguineous temperament.

1. *Rheumatalgia.*—That rheumatismal pain seizing different parts of the body, particularly the middle part of the limbs, or the larger muscles of the trunk, depending

as it always does on a variety of original causes, experiences great benefit from these waters. In 300 cases noted with care, 125 were completely cured, 136 were very manifestly ameliorated, 35 only shewed no improvement, and 3 were aggravated.

Dr. Pagès says that "chronic rheumatisms, articular, fibrous, muscular, nervous with or without wasting of the limbs, are frequently cured, very often relieved; sometimes, but rarely, without result.'

2. *Lumbago.* Of 65 cases treated in a given time, 17 were cured, 40 sensibly ameliorated, 6 received no benefit, and in 2, from the action of the douche, inflammation of the kidneys and bladder supervened.

3. In articular rheumatism, when all inflammatory symptoms have passed off, and where there remain enlargement, weakness and rigidity of the joints, the waters of Barrèges are essentially indicated; but if there be present any inflammatory symptoms, which may even have passed to the chronic state, they aggravate the disease, and the invalid quits Barrèges in a worse state than on his arrival.

4. In muscular retractions, the sequel of rheumatism, the waters of Barrèges produce advantageous results, and in wasting and trembling of the limbs from the same cause; out of 31 cases treated, in a certain period, there were 9 cures, 17 ameliorations, and 5 without success. In muscular retractions from tendinous and nervous injuries, the waters scarcely exert any sensible effect.

Dr. Pagès writes, 'The waters are sometimes successful in an unexpected manner in these cases of muscular retraction, even of long standing. They, however, often fail.'

5. *Sciatica.* In twelve cases treated by Dr. Gasc, five appeared cured, and seven more or less relieved.

6. *Anchylosis.* In nine persons suffering from this condition of joints, under the care of Dr. Gasc, of which six were false and three true, five experienced remarkable amelioration; the sixth, and the three cases of true anchylosis, derived no sensible advantage. Dr. Ballard says that in false anchylosis depending on deposits, the result of inflammation, or altered secretion of the synovial membrane, that the douche induces a decided absorbing and resolutive process, in the morbidly enlarged parts. He had experience in the treatment of 159 cases; of which 32 were entirely cured, 96 sensibly ameliorated, and 31 which showed no sensible change. It is, however, to be remarked, with regard to this and most other chronic affections, that the full benefits derivable from the waters are not always visible at the time of their administration, and that many of the cases, put down in different parts of this chapter, as having been only ameliorated, were, in fact, in an early stage towards a decided cure, at some period not very remote, as we have ourselves seen in frequent instances.

7. *White-swelling.* It is principally in scrofulous affections of the joints that the sulphurous waters appear to exercise an efficacious action. Dr. Pagès has seen frequently scrofulous enlargements of the joints, complicated even with ulceration, sensibly improved, and even cured, under the influence of these waters, when the patients have taken them with perseverance, that is to say, during several seasons. 'I am in possession,' says the medical inspector, 'of a certain number of observations on the subject of *white-swelling*, which, in the

opinion of most surgeons, would be cases for amputation, for which even that operation was recommended, and which, under the healing powers of the Barrèges waters, have terminated in a favorable manner. I have never seen in the hospitals of Paris any means produce effects so uniformly beneficial. I do not pretend to advance, that our waters can succeed in every case. Indeed when organic alterations have arrived at their last stage, when the constitution of the patient is undermined by hectic fever, then, alas, the waters of Barrèges, far from being useful, only hasten a death become inevitable.'

Dr. Ballard gives the result of 21 cases treated by him; of these 4 were cured, 10 ameliorated, in 6 no effect produced, and one aggravated.

Deep-seated irritation. From the centrifugal power which the waters of Barrèges exert on the human frame they have been found eminently useful in directing to the surface any deep-seated sources of irritation, such as:— 1st. Foreign bodies lodged deep in the soft parts, as a musket ball, pieces of cloth, etc. 2nd. Deep-seated abcesses. And 3rd. Carious bones, in whose exfoliation and discharge, these waters act in a manner that may, without exaggeration, be called specific. Bordeu relates many cases of persons suffering from caries of the femur, vertebræ, ribs, clavicle, scapula, and humerus, etc., who had been entirely cured by the Barrèges waters.

Dr. Pagès here observes, 'These waters, whose action is so efficacious in exciting a movement from the centre to the surface of the body, have an unique power in expelling foreign bodies. I have seen to-day a patient who received a gun-shot wound a good many years ago, which broke in pieces the thigh bone. He has had the

good fortune to preserve the limb, deformed it is true, but still in a good way to be cured. A piece of bone and a bit of cloth have come out this morning, by a fistulous opening, which still exists in the inner and lower part of the right thigh.'

Ulcers. Bordeu, a high authority, says on this subject 'These waters have been always regarded as specific for the cure of ulcers. I have seen ulcers of every description and in all parts of the body, inveterate or recent, yield to their use. A Spaniard who had his legs much swollen, and covered with old ulcers, of which I counted twenty-four on one leg, was cured in sixty days by the waters of Barrèges, to which he had recourse after having exhausted all other remedies.'

'These waters' writes Dr. Pagès, 'do most signal service in all cases of scrofula, whatever form they may assume, in whatever tissue they may be placed, glandular enlargements, white swellings of the joints, diseases of the bones, necrosis, caries, coxalgea or spontaneous luxations, provided that they have not arrived at the third stage, when copious suppuration has already much weakened the patient's health, ophthalmia, chronic inflammation of the ear, fistula, chronic ulcers, etc., etc.

'They succeed, also, in certain chronic engorgements, such as those which follow on the disease to which the name of *phlegmasia alba dolens* has been given, and in *elephantiasis des Arabes.*

'In old syphilitic affections they are an excellent remedy, and are, besides, a good touchstone by which to judge of the cure of the disease. There is not a year passes in which I have not occasion to observe, that persons, who believe themselves completely cured, see,

under the influence of the waters of Barrèges, syphilitic eruptions appear in different regions of the body. But, under a prolonged action of the waters, we see very commonly these affections cured and altogether disappear. We do not know any means so effectual as these for combating and neutralising the disagreeable effects produced on certain constitutions by the immoderate and irrational use of mercurial preparations.

'Paralytic affections, which have for their cause external injury, contusion, fall, etc., rheumatismal taint, metallic poisons, exhaustion produced by excesses—in a word, all those paralytic diseases, which are not dependent on organic injury of the nervous centres, are very frequently cured, and almost always relieved, by the use of the waters of Barrèges.'

We have, we think, now said enough to convey a distinct view of the most prominent qualities of these waters. It has not been considered necessary here to enter into the minutiæ of accompanying medical treatment and regimen. These, the able and experienced official physicians of Barrèges will arrange for each individual, according to the necessities of the case. The object which the author had in view, was to bring forward, before his countrymen, the claims of so powerful a curative agent, and to point out approximately the description of disease for the cure of which a reasonable hope may be entertained, and also of those which not only would not be benefited, but, on the contrary, aggravated, by the use of the waters of Barrèges.

A league and a half from Barrèges, in the valley of Luz, is St. Sauveur, already referred to. From its waters being feebly sulphurous and thermal, they are considered

auxiliary to those of Barrèges as a preparative, or as a mild substitute, when the stronger sulphur waters create too great an excitement in the system. The accommodation being also cheaper and better at Luz and St. Sauveur, persons, whose maladies do not render a strict residence at Barrèges necessary, may live here in a milder atmosphere, and resort daily to Barrèges for the baths.

The village of St. Sauveur is very beautifully situated on a terrace, which looks down from the height of two hundred feet on the Gave of Gavarnie. The thermal establishment is one of the finest of the Pyrenees; and eighteen well-furnished houses afford accommodation to about three hundred strangers. The season commences in May, and ends in October.

There is only one spring, which supplies a douche, fountain, and sixteen baths in polished marble.

By analysis, the water is found to contain nearly the same principles of mineralisation as those of Barrèges, but in a minor degree; a quart of the water, for instance, containing 0·02536 grains of sulphuret of sodium, and the temperature averaging 94°.

These waters are very suitable, where the use of the sulphurous springs is indicated, for women, children, and invalids of a feeble and delicate constitution, complicated with irritability, and for nervous females debilitated by a residence in large towns, in spasmodic and hypochondriac affections, in incipient coughs, and in slight congestions of the liver and other abdominal viscera.

CHAPTER XXVII.

LUZ TO CAUTERETS.—PASSING DESCRIPTION OF SCENERY.—CAUTERETS.—ANCIENT HISTORY AND PRESENT STATE.—PROMENADES.—OBJECTS OF INTEREST IN THE NEIGHBOURHOOD.—IZZARD AND BEAR-HUNTING.—TROUT-FISHING.

LEAVING behind us Barrèges and St. Sauveur, and the beautiful basin of Luz, verdant and sparkling at all times, from its luxuriant meadows and the streamlets which irrigate it in every direction, we turn towards Cauterets.

Of all the numerous basins one meets with in the Pyrenees, there are none, perhaps, possessing in such perfection so many and varied beauties, all harmonising together, as this of Luz. It is surrounded almost in its whole extent, which may be three-quarters of a mile in breadth to a mile and a half in length, by mountains, some starting in perpendicular abruptness to a height of three thousand feet, bare, ragged, and dilapidated; others of less, but still considerable altitude, from which the perseverance of man has forced a coy but remunerating cultivation, even to their summits. Stretching the eye down the gorge of Pierrefitte, amid the rude and mysterious grandeur of its granite and calcareous walls, we have a *tableau* altogether faultless as to effect; and a parallel to which we may long seek in vain to discover.

The meadows in the more level parts of the valley of Luz, as well as all the practicable parts of the mountain sides, are maintained in a state of the richest colouring, even during a long continuance of drought, by means of

mountain streams, which are everywhere turned to the useful purposes of irrigation. While we have seen in the plains of Bearn and Bigorre, during a dry summer, vegetation scorched almost to carbon,—in this valley we have spring encroaching upon autumn, all verdure and freshness. But however reviving to look upon, and however acceptable to the farmer, who reaps his three or four crops of hay, still, as a place of residence for invalids, it has, on this account, manifest inconveniences. The sun's rays, acting upon the whole superficies of the valley, saturated at all times with wet, not merely produce inevitable evaporation to a great extent, but a distillation also of vegetable principles, which cling to and are wafted on this loaded air. Particularly towards the setting of the sun, we perceive a haze to creep along the valley; and the damp chilliness engendered, mixed with these exhalations, do not render Luz the most desirable abode in the Pyrenees for persons of a delicate and sensitive organisation.

In other respects, Luz is a very pleasant residence, the natives being orderly and civil; and the prices of everything, particularly house-rent, are more moderate than at the other watering-places.

To proceed from Luz to Cauterets, it is necessary to retrace our steps, through the gorge of Pierrefitte to that village, which is the common centre from which the Barrèges and Cauterets roads diverge up their separate passes. As we omitted any description of the former, as we passed on to Barrèges, we shall here give the words of an author,* who has written well on Pyrenean scenery

* *A Summer in the Pyrenees*, by the Hon. J. E. Murray, vol. ii. p. 91.

and manners:—'Proceeding down the Lavedan, we enter the gorge which separates the exquisite basin of Luz from the valley of Argeles. There is not a more magnificent defile in the Pyrenees than this; certainly not one, through which the timid may wend his way in more perfect security, and, free from all sensation of danger, contemplate the grandeur and majesty of the pass. It is one of those places which never palls upon the sight: visit it as often as we may, there is always something new to be seen, some feature we had not discovered; or those with which we were familiar, wearing a different aspect, are still as novel and interesting as at first. The sides of the defile are precipitous mountains, rising at first perpendicularly from the bed of the river, but afterwards having just sufficient slope to permit the box and heath, and various other shrubs and bushes, and a profusion of wild flowers, to hang upon their steeps, even where there appears not a particle of soil to yield them nourishment. The numerous twists and bendings of the defile are still more interesting. There little ravines appear, down which the waters from the upper valleys are seen descending, half hidden in the foliage of the ash and oak trees, which skirt their torrents and bend over them; while far above are caught glimpses of the higher regions of the mountains covered with pines. The road by means of which alone the traveller, nay, even the peasant of the district, has been enabled to enter this extraordinary scene, has been a work of prodigious labour. For almost the whole length of the pass, it has been formed by blasting the precipice into galleries, two, three, and sometimes four hundred feet above the river, sometimes forced by an elbow of the mountain

to cross to the opposite precipice, there to be forced back again by a still greater obstruction. These crossings and re-crossings of the stream add greatly to the picturesque beauty of the defile: one moment we are in a spot to which the sun's rays scarcely ever find their way; in the next, we have them beating down upon us in all their splendour; and from the centre of the many marble bridges of one arch, which span the dark abyss, the full grandeur of the scene is developed. Such is the gorge of Pierrefitte; fifty years ago, an izzard could not have clung to its sides, now carriages of all descriptions pass along the fine road which has been constructed through it.'*

At Pierrefitte, we emerge from the gorge into the valley of Argeles again, after passing through the village, to enter that of Cauterets. 'The scenery along this route is somewhat similar to that of the gorge of Pierrefitte, although not to be compared to it in magnificence. The gorge of Cauterets is more open; the road does not always hang over its torrents; and the gentler beauties, the little grassy platforms, which now and then appear in it, studded with magnificent trees, may render it more pleasing to many individuals than the savage grandeur of the gorge of Pierrefitte.'

Six miles of a gradual but not very rapid ascent conduct us to Cauterets:—a town of a solitary but picturesque site, containing a stationary population of eight hundred persons. It is said that one thousand strangers

* Since Mr. Murray wrote this, a gigantic undertaking has been completed by the Government, by which the road is lowered in some parts 200 feet.

have been lodged in Cauterets. It differs from the Eaux-Bonnes, Eaux-Chaudes, and even Barrèges and St. Sauveur, by its greater size, and the extreme abundance and variety of its mineral sources, not being merely a place for summer sojourn only, but a nice, clean, well-built, and well-sheltered little town, where, during the winter months, something else in life except bears is to be found. Its winter is not so severe as one would expect, from its being perched so high in the air, viz., 2900 feet above the level of the sea.

But before describing Cauterets, as we find it at the present day, we shall cast a rapid glance back on its origin, and on the early knowledge which existed as to the healing qualities of its waters.

Some three or four hundred feet high, above the present town of Cauterets, and clinging to the rapid descent of one of its environing mountains, there still exists, and still is held in deserved estimation, one of the many sources which here abound, viz., that of 'Cæsar.' It derives this dignified name, as local history and tradition inform us, from its having been honoured by the notice of Julius Cæsar, and from its having contributed to the cure of some ailment of that distinguished general.

That this source must have been regarded as of great account, is evident from the circumstance that the town, which is now built in the basin formed by the surrounding mountains, a locality well sheltered and easy of access, was originally for ages, and until a century and a half ago, composed of a few habitations only, surrounding and ancillary to the *source de César*, chosen evidently from no other motive than that of proximity; for it seems almost a miracle, at the present day, with all modern

appliances, how the many lame and decrepid persons are transported to this elevated spot. Since then, however, matters have changed. New and varied sources having from time to time been discovered, the votaries became more divided in their homage, and Cauterets took a downward march to a more tenable position, and has gradually developed itself, until it has become a sprightly little town of palaces, where the marble of its native mountains is found to lend its aid very prominently towards its adornment.

An early *prestige* was also given to Cauterets, from the 'Source des Espagnoles' having cured Abarea, the first king of Arragon, of some grievous malady; and in later times, from the patronage bestowed upon the waters by the witty Marguerite, queen of Navarre, sister of Francis I. She conferred upon one of the sources the poetic appellation of *Fontaine d' Amour,* which, alas, has now degenerated into the less interesting one of Bruzaud. Here, during the season, the brilliant court was held, and Cauterets became celebrated as a place where the evils which oppressed the body, or the clouds which obscured the sunshine of the mind, might be equally dispersed by the magic of its waters, and the *spirituel* and chivalrous diversions of a captivating court.

Here, too, Henri Quatre, in his younger days, was accustomed to recreate himself; and persons the most illustrious in rank, in science, and in arms, have, in all periods of its history up to the present time, been found amongst the galaxy of its visitors.

Cauterets of the present day is composed either of hotels or private houses, which are all to be let out as apartments; and it must be allowed that the proprietors

know very well how to make the most of them; for, with the exception of the Eaux-Bonnes, of which place we shall speak hereafter, house-rent at Cauterets is higher than at any other watering-place in the Pyrenees; the price demanded, and often received in the best situations, being from three to five francs a day *per room* for even a lengthened period. From the crowds of invalids and tourists who flock from all parts, it is desirable even to bespeak apartments some time before they are absolutely wanted; for many, for whom these waters are most decidedly indicated, have been obliged to quit Cauterets in bitter disappointment at the impossibility of finding accommodation.

The environs of Cauterets abound in charming sites, and the promenades for those in health may be very much varied. For the invalid too feeble for excitement there is the velvety park, with its sheltering trees, running the distance of a mile, parallel to the Gave, and diplaying, here and there, some beautiful peeps of scenery. Here he may sit during the day in complete shelter from the sun, and inhale the invigorating air, as it comes freshened down the mountain passes; but should his strength increase, small is the exertion necessary to make more lengthened and what would seem highly laborious excursions. By the aid of a *chaise à porteur*, a species of sedan, born by two sturdy mountaineers and two relays, almost all the lions of the neighbourhood may be visited:—a hurried account of which we shall now proceed to give.

There is a spot in the neighbourhood of Cauterets, three-quarters of an hour from the town, to which people resort, by a gradual ascent of 600 to 800 feet, called the Grange de la Reine, partly out of respect to

the memory of the illustrious dead, and partly on account of the favourable position for taking a view of the surrounding scenery. Here Queen Hortense, mother of the present Emperor of the French, returning from Luz, over the mountains, was benighted and halted. Beloved by the people of the district, for her open-handed goodness and gracious manners, they have attached a sacredness to the spot. However, the house that sheltered this amiable princess is only a shepherd's cottage; but the view is very fine. One does not take in a vast horizon, as from the top of its neighbour, the Monné; but there is the basin of Cauterets, with its mountain walls, some thousands of feet in height, with their black pine clothing,—the gorge leading to Pierrefitte,—and a distant vista of the valley of Argeles, almost to Lourdes.

But the hardy and adventurous visitor, desirous of seeing the best dissected map of the Pyrenees, in this part of their chain, as well as of enjoying an horizon of immeasurable extent, may ascend the Monné,—a mountain in the immediate vicinity of Cauterets. Let him choose a good guide, a strong pony, and clear weather; and if he wishes to have the scene in perfection, let him start early enough to enable him to reach the summit before sun-rise. From this summit the most culminating of the Pyrenees are visible, and many of the most famed objects of interest. Directly to the south is displayed the amphitheatre of the Lac de Gaube, the numerous cascades careering down the Vignemale, the pinnacle of the French Pyrenees, and its resplendent glaciers; to the south-west of the glaciers, the Camales and Higuencle, the soaring limit between France and Spain; to the west the bifurcated summit of the Pic de Midi de Pau;

on the verge of the horizon, to the south-east, Marbore and the Brèche de Roland, and its majestic towers; an further on, and in the same direction, we see the ice-capped Mont Perdu, with a thousand other peaks and crests, differing in form and elevation, but producing a *coup d'œil* which strikes the spectator with astonishment and awe. To the north open out the vast plains of Bigorre and Bearn, and many lands besides, extending so far into distance that no definite horizon can be distinguished.

The excursion most in vogue, and one which myriads come far and near to make, is that to the Pont d'Espagne and Lac de Gaube. There is, unquestionably, nothing in the Pyrenees, as to scenery, at all equal to this; for Gavarnie cannot properly be brought into competition with it; since the latter is so unique as to offer no corresponding points, by which a comparison could be justly made. Gavarnie stands alone in the architecture of nature.

The road leading to the Pont d'Espagne and Lac de Gaube is through a deep and broken gorge, along which the Gave rushes with impetuous force over precipice after precipice, causing an innumerable succession of cascades, some of them of surpassing grandeur and beauty; for we have not merely the cascades themselves, but, looking down upon them from the road, which winds along the rocky sides of the Gave, the chasms, on a sunny day, are spanned with the most richly developed rainbows, the offspring of the sun and spray, projected to a grand distance. Throughout the course of the Gave, for miles, its channels seem to flow with milk, so complete and constant is the agitation. Then add to this the cone-shaped mountains clothed with the black pine to their needle-pointed summits, starting up to a

sudden elevation of 6000 feet from where you stand, with rugged and luxuriant filling-in of the foregrounds; and the reader may readily suppose that there are materials for a marvellous picture. Four or five miles of this scenery bring us to the Pont d'Espagne, which cannot be described either by pen or pencil. Two miles further on is the Lac de Gaube, the source of the Gave, whose gambols, on being set loose, we have just alluded to, reposing amidst solitude itself at the foot of the Vignemale, the highest mountain of the French Pyrenees. The lake is small, and, as a piece of water, is not worthy of particular notice; it is the frame which girds it that gives it its charm.

There is still another excursion to be made from Cauterets which will well repay the labour, and one, strangely enough, very rarely undertaken; it is to the Lac d'Estom Soubiran, through the valley du Lutour. In the valley, for eight miles, we have the rudest and wildest scenery to be found in the Pyrenees; then, after passing a noble cascade, curiously studded with pine trees, we arrive at a lake called the Lac d'Estom. Here, in the month of July, many years ago, when two friends accompanied the author on this occasion, we found ourselves in the neighbourhood of the snow regions. Nothing could be more bleak or desolate than this spot. No vestige of a human habitation, or of human beings, with the exception of two goat-herds who had, in the summer months, spent their youth and manhood in this desert, and recollected not one party, during fourteen years, who had proceeded to the upper lake. However, being determined to make the attempt, we induced one of the goat-herds to guide us, and commenced the

ascent of one of the most uninviting mountains in creation, a near neighbour of the Vignemale, and little inferior in height, where our first essay at ascending was over a bridge of snow, with a torrent running beneath. After two or three hours of toilsome labour, we gained one of the crests of the mountain, and had the satisfaction to see on the other side, many hundred feet beneath us, the Lac d'Estom Soubiran completely frozen over; and this in the south of France, a few miles from Spain, and on the sixth of July. The surrounding scenery was very wild, and of a different character from anything we had previously seen in these mountains. The two gentlemen who accompanied the author were good specimens of the curative powers of the Cauterets waters in chronic laryngitis; for, so much benefited had they been by a few weeks' residence and the use of these waters, that they made this toilsome excursion, through every descending degree of temperature from summer-heat to freezing without any return of their malady; and both had been cases of considerable duration.

The sportsman will, in the neighbourhood of Cauterets, among the lofty summits in summer, and much lower down in the autumn and spring, find ample sport in hunting the izzard and bear. Mr. Murray* on this subject says:—'There are some of the best *chasseurs* of the mountains, natives of Cauterets, and it is one of the places where I would recommend those who are fond of such wild sports as izzard and bear-shooting, to establish themselves for a fortnight towards the end of spring, and where I can assure them they will have themselves to

* *Summer in the Pyrenees*, p. 95.

blame, if they do not meet with success. There is no scarcity of izzards upon the neighbouring mountains, and the bears, not now so plentiful as they were, are still to be found among the pine forests, which lie between the Vignemale and the Pic de Midi de Pau. Jean Latapis (still at Cauterets) is the most successful *chasseur* and the best guide in this district. Few seasons have passed over, in which Jean has not been able to increase the number of notches upon the stick which records his victories over the bears. Implicit confidence may be placed in his honesty, sagacity, and hardihood.'

Trout-fishing is the only sport the Gave furnishes. The trout differ in each stream as to flavour and colour; those of Lutour and Cambascou being blacker. The salmon-trout of the lakes is the most valued. We cannot resist quoting the authority of Mr. Inglis,* who says, 'How charming a spot would it be for the disciple of Isaac Walton; for the Gave of Cauterets is a stream, the sight of which would make the heart of an angler leap for joy. It is neither too large nor two small, neither too limpid nor too dark, neither too rapid nor too slow, shaded occasionally by high banks, but not shaded by trees. But it possesses two drawbacks nearly fatal to the enjoyment of a thorough angler. The fish are so numerous as to insure a nibble at every cast, and so simple-minded and credulous, that every nibble proves a take. I am almost ashamed to add, since I am speaking to sportsmen, that the trout of the Gave of Cauterets are admirable done in the frying-pan.'

* *Switzerland, France and the Pyrenees*, by H. D. Inglis, vol. ii., p. 180.

CHAPTER XXVIII.

CAUTERETS.— DESCRIPTION OF THE INDIVIDUAL MINERAL SOURCES. THEIR ANALYSIS AND ACTION ON DISEASE.

WE are now to treat of the mineral sources of Cauterets, and of their influence on disease. We have to remark at the outset generally, that here we find, pent up in a small space, plentiful specimens of almost all the other sulphurous waters scattered over the extent of the Pyrenees. We have sources as powerful as those of Barrèges, and some which very nearly resemble them; waters possessing the virtues of those of the Eaux-Chaudes and Eaux-Bonnes, and even preferable to them in their exhibition, as oppressing the stomach less, and passing more easily off by natural exits; and springs, shading from the most powerful stimulant down to the mild and soothing sulphurous waters of Petit St. Sauveur.

It must be evident, that in the treatment of disease, it is highly advantageous to be armed with varied instruments of power to combat varying symptoms; for frequently, in the thermal treatment of maladies, it is necessary, from idiosyncrasy, and the changes which occur during the process of cure, to discontinue the use of some one source, and to substitute another of stronger or milder properties, according to the necessities of the occasion. It is, too, often highly desirable, to commence a course of the waters, in certain sensitive

and irritable states of habit, by administering a milder water; and when the patient's system has become accustomed to the stimulus, in a modified form, to advance upon the more vigorous plan of operations called for by the emergencies of the case. Cauterets supplies this desideratum perfectly, and is therefore the watering-place which we are in the habit, during the season, chiefly of frequenting ourselves and, *cæteris paribus*, of recommending to others.

There are other circumstances connected with local position and climate, which, in our opinion, give Cauterets a preference over the other chief sulphurous watering-places of the Pyrenees. Its climate and topographical position, for instance, are preferable to Barrèges. Cauterets is upwards of 1,000 feet lower than Barrèges, is better sheltered, has a less keen raw air, and is not subject to the constantly recurring fogs, which infest the latter, and which penetrate with the greatest perseverance, in the shortest space of time, to the skin, as we have had an opportunity frequently to experience. The air of Cauterets, again, is more bracing than that of the Eaux-Bonnes, and, except in cases where a sedative atmosphere is indicated, such as in tuberculous irritation of the air-passages or lungs themselves, where the Eaux-Bonnes are considered to be suitable, is more conducive to the favourable action of the waters, in the great majority of diseases, for which invalids resort to them. Further, the locality of Cauterets is more open than that of Eaux-Chaudes, and is sheltered from any partial gusts of wind; whereas, in the latter, we have a current of air, almost constantly blowing down the narrow gully of Gabbas, detrimental to all persons

predisposed to organic diseases of any of the noble viscera, particularly the lungs, or suffering from ailments arising in constitutions of diminished irritability, and enfeebled vital energy. There is another important circumstance also which may here be properly mentioned; that the thermal temperature of the Cauterets waters is considerably higher than that of the sources of the other watering-places mentioned, an element of no small philosophic as well as practical value, in thermal therapeutics.

Cauterets possesses eleven independent sources, five of which are situated to the east of the town, viz., La Reine, Cæsar, Rieumiset, Bruzaud, and Pause; and six to the south, namely, La Raillère, Le Petit St. Sauveur, Le Pré, Maouhourat, des Œufs, and Les Bains du Bois.

Before entering into a description of these individua l sources, we think it better to give an analysis of one of these, and that perhaps the most in requisition, namely, La Raillère; and as the principles of mineralization are nearly the same in all, varied chiefly as to temperature, and the quantities of sulphuret of sodium that enter into their composition, a statement of these differences, applicable to each source, will convey a sufficiently precise idea of their chemical composition.

In a quart of the Raillère water there are* of

Nitrogen gas	quart	0·004
Sulphuret of Sodium . . .	gr.	0·019400
Sulphate of Soda	do.	0·044347
Chloruret of Sodium . . .	do.	0·049576
Silex	do.	0·061097

* *Manuel des Eaux Minérales*, par PATISSIER, p. 129.

Lime	gr. 0·004487
Magnesia	do. 0·000445
Caustic Soda	do. 0·003396
Barrégine	traces.
Caustic Potassa	do.

Temperature 104° Fahrenheit.

The following quantities of sulphuret of sodium are contained in the other sources, and their temperatures are given.

	GR.	TEMPERATURE.
Source des Espagnoles . .	0·0334 ...	122°
——— de Bruzaud . . .	0·0385 ...	104°
——— de César . . .	0·0303 ...	124°
——— de Pause . . .	0·0303 ...	115½°
——— du Pré	0·0159 ...	120°
——— du Bois	0·0140 ...	122°
——— Maouhourat . . .	0·0124 ...	131°

La Raillère.

This source, although not entitled to rank as the most ancient of the Cauterets springs, had yet achieved for itself, a considerable time ago, a paramount reputation, in a class of diseases, which, in Great Britain at least, seem to be on the increase, viz., chronic affections of the different mucous membranes, but more particularly of the air-passages: and at the present time, the crowds of anxious invalids who press to its establishment from all parts, and the great proportion cured to the numbers under treatment, fully attest its claims to be considered a remedial agent more efficacious and more to be depended upon, than any which mere pharmacy, guided by the most enlightened science, has to offer.

The establishment of La Raillère is situated a mile from the town, on the road to the Lac de Gaube. The

ascent to it is fatiguing to a debilitated person; but well-appointed omnibuses start from the town every quarter of an hour. All the operations of water-drinking and bathing take place from four in the morning till nine or ten o'clock A.M. But when the influx of invalids is great, and the cases are those requiring baths, it is not unusual to hear the bustle of departing and arriving relays of bathers during the whole night.

The thermal building of La Raillère contains twenty-three *cabinets de bains*, a fountain for the water-drinkers, and an ascending and descending douche, a large peristyle in marble arches, and an extensive terrace in front to take exercise on, either in dry or wet weather.

It is necessary, when an invalid arrives at Cauterets to take the baths, that he put himself in communication with the physician inspector, Dr. Buron, who will inscribe his name, and fix upon the hour at which he can be accommodated. The invalid has then a claim upon the bath for this hour, as well as for a *chaise à porteur*, until the close of the course of waters which may have been recommended to him.

The external physical features of the Raillère waters are those common to the sulphurous waters of the Pyrenees generally — their chemical analysis we have already given. We shall now, therefore, say a few words as to their undoubted medical properties, and as to the *tissues* on which they exert their most favourable action.

The different mucous membranes, in disease, is the pathologic condition of the body on which the Raillère water acts with peculiar energy — and its curative powers have been brought to bear most extensively on chronic

affections of the larynx, trachea, and bronchi. Not merely in simple atony of this membrane, arising out of a generally cachectic state of constitution; or where, from an aberration of function, we have secretion in excess, and that of a muco-purulent and sanguineous kind; but even in an obstinately chronic condition of parts, where the structure itself has become partially affected with ulceration, we have seen, and we have had undoubted evidence to satisfy us from the experience of others, that the waters of La Raillère, aided and alternated with those of Maouhourat, have produced decided and permanent cures in an incredible proportion of cases. But these states of the membrane must not be complicated with tuberculous deposits in the lungs, *in a state even of incipient activity.* Whatever may have been said or written as to the curative powers of the Pyrenean waters in tuberculous consumption, the author is decidedly of opinion, that whenever tubercles have made a stage, however small, in advance of their passive state, the sulphurous mineral waters of the Pyrenees will excite them to further progress. But it does not necessarily follow that the waters of La Raillère are always contra-indicated where tubercles may be suspected to be either in process of deposition or in an inactive state. The derivative influence of these waters, from deep-seated parts to the mucous surfaces, will tend to check a further deposition of tuberculous matter in those structures, and throw more activity of circulation on a safer surface.

From the record of cases, which we have had an opportunity of examining in this branch of disease, we have no hesitation in asserting with confidence, that many cases, simulating consumption most closely, except in the

absence of stethoscopic indication of tubercles in activity, have been checked in their progress, which, if left to the usual curative means, would speedily have involved the cartilaginous structure of the air-tubes, in an ulcerative process, and roused into cachectic ulceration the substance of the lungs themselves.

Indeed, so much confidence have we in these waters of La Raillère and Maouhourat, in affections of the mucous membranes generally, that we consider their beneficial effects may, in a great degree, be depended upon, provided disorganisation has not proceeded to an extent for which there are not in nature herself any reserved powers of restoration; or where the affection is not mixed up with some other malady, contra-indicating the use of the waters.

These opinions have not been loosely formed, but have the support of the ablest physicians who have had experience of these waters; we may cite the Bordeus, who accumulated a record of 2000 cases, arising out of their experience of the Pyrenean waters; Camus, who has written a painstaking work on the subject; Dr. Buron, who has been inspector for thirty years; and lastly, Orfila, the greatest authority of the present day, who passed several seasons at Cauterets for his own health, and who published his opinions in the *Dictionnaire de Médecin*, 2nd edition, tom. vii., p. 39. Speaking of La Raillère, he says, 'that the waters are administered in chronic bronchitis; in the *earliest* stage of tuberculous consumption; in certain hæmoptyses; in pulmonary neuralgia; and in gastralgia. This establishment,' says he, 'is the most frequented, and is the one which renders the greatest benefit to the invalid.

Pause.

This establishment is well frequented, and contains eleven *cabinets de bains*, a fountain and douche. 'These waters,' says Monsieur Orfila, 'are particularly useful internally, as well as in bath and douche, in chronic rheumatic affections, in cutaneous maladies, in inveterate catarrhs, in humid asthma, in certain kinds of secondary syphilis, and in several lymphatic diseases.

Cæsar and Les Espagnols.

A few years ago, a magnificent establishment in marble was built, and furnished with every desirable adjunct, where these two springs are united under the same roof.

Both these latter waters fulfil nearly the same indications as those of Pause. Occasionally they are found to be too energetic, and ought only to be employed in persons of a low degree of irritability. They are administered with advantage in paralysis, unconnected with cerebral congestion or lesion; in painful affections of the bones; and in inveterate lymphatic diseases. These waters are, both from their temperature and the proportion of sulphurous principles, among the most powerful of the Pyrenean springs; and, therefore, require to be prescribed with judgment, and their action watched with care.

Le Bois.

This establishment, which is situated in a very elevated position beyond the Raillère, is commodious and well arranged. It contains two *piscines*, or large baths in marble, four *cabinets de bains*, with a douche in each, and beds for the invalid, who may desire to encourage

the profuse perspiration produced by the bath and douche. These waters are pre-eminently of use in rheumatic gout, in nervous temperaments where all inflammatory symptoms have disappeared, and in several cutaneous disorders.

Le Pré,

Is an old establishment, having sixteen *cabinets de bains,* and a douche of great power, the properties of the waters being nearly the same as those of Le Bois.

Bruzaud.

This establishment has twelve *cabinets de bains* and a douche, capable of being applied with graduated degrees of force. 'This water,' says M. Orfila, 'is employed with advantage in dissipating abdominal engorgements.' We have known in passive hepatic congestions, from weakened functional action, the application of the douche to the region of the liver remove this state of things, by exciting a more vigorous circulation through this organ.

Maouhourat.

The waters of this spring are drunk in the rude cave, where they spring out of the granite rock, man having not in this case interfered with nature. M. Orfila says of these waters:—'They are above all things advantageous in the chronic maladies of the digestive apparatus, marked by the absence of irritation. Gastralgia and dyspepsia resist for a very short time only the action of these waters, which we take internally. Their great reputation is sufficiently proved by the eagerness with which invalids flock to the spring, difficult as it is of approach, from its distance from, and elevation above, Cauterets.'

We willingly join our testimony to this statement. We have never met with any remedy whose action induces such tone in a debilitated state of the digestive organs.

Petit St. Sauveur.

This is a plain unpretending establishment, containing twelve *cabinets de bains;* and its waters possess the same mild non-irritating medical properties as those of St. Sauveur, in the valley of Luz, which we have already fully described.

We now bring forward some details with regard to the nature of the diseases submitted to the curative action of the waters, as affording the most sure means of appreciating their virtues. We are indebted to Dr. Buron, who has been for more than a quarter of a century the experienced Medical Inspector of the waters of Cauterets. After having well considered these details, the reader will be convinced that these springs have frequently done a great deal more, in curing and alleviating the cases brought under their influence, than one could have expected from such apparently simple means. And we shall be still more convinced of this when we reflect, that the invalids treated have been often sent *pêle mêle*, without any previous serious medical examination of their cases, as to whether they were actually suitable or not to the waters to which they have had recourse; whereas in cases of confirmed consumption, for which they have been much vaunted, they are of little or no real efficacy, and are often decidedly pernicious.

1. '*Bronchitic Catarrh.* The efficacy of these waters in this malady is so much more certain when the inflam-

matory symptoms have altogether disappeared. In 1388 cases treated, 624 were cured, 398 relieved, and 366 treated without success or aggravated.

'The average standing of those cases which were cured, was from 6 to 18 months; of those relieved, from 2 to 6 years; of those which resisted or were aggravated, of older date.

2. '*Dry Asthma.* In 242 cases, there was not one cured; 165 were relieved, and 77 treated without success.

3. '*Humid Asthma.* In 288 cases, there was not one cured; 163 were relieved, and 125 were treated without success.

'These asthmatic affections did not depend, although it often happens, on any organic alteration of the heart or large vessels. Experience has clearly shewn, that, in these last complications, the waters are often fatal remedies.

4. '*Chronic Laryngitis and Pharyngitis.* In 532 cases, 177 were cured, 320 relieved, and 35 treated without success. We must make, in these cases, the same remark as has been already made, when treating of bronchitic catarrh, that there must be an absence of any *active* inflammatory symptom. The great proportion of these cases has been found among lawyers, preachers and drill-officers of regiments. All had more or less fatigued the vocal organs by overstraining them.

5. '*Laryngeal Consumption.* In 70 cases treated, there was not one cured; 15 were relieved, and 55 treated without success. This disease, when once fairly established, is more often aggravated than relieved by the waters.

6. '*Pulmonary Consumption*, first stage. In 240 cases, there was not one case cured; 68 were relieved, and 172 treated without success.

7. '*Pulmonary Consumption*, second and third stage. In 127 cases treated, none cured; 13 relieved, and 114 treated without success.

'It is only with the greatest circumspection that even the mildest waters should be given to invalids, where the symptoms of consumption are clearly marked. It happens, however, sometimes that a grave pulmonary affection, the result of some eruption that has been thrown in upon the system, shows itself without fever, without heat or dryness of the skin, and in a lymphatic habit of body. In these cases, unfortunately too rare, we have seen consumptive patients, whose state was looked upon as hopeless, return to the source which had relieved them; but more frequently still among the patients who seemed restored to health, the march of the disease was but arrested for the time. What, indeed, can one expect from any waters where the lungs are a prey to a process of disorganizing decay, and when tubercles are in full suppuration? Do they not, in fact, furnish new elements of irritation, and accelerate the fate of the sufferers. May these observations make an impression on physicians at a distance from these thermal waters. May they understand, that in such a stage of pulmonary disease, the sulphurous waters can only shorten the days of the patient, and that it would be much better to leave him to breathe his last sigh in the bosom of his family, whose tenderness will soothe the bitterness of his last moments.'*

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* Dr. Buron's Communication to the Author.

Statistic Table of Chronic Diseases, Treated at Cauterets, during a period of Ten Years, with the results.

Names of Diseases.	Number of Cases of each Malady.	Number of Diseases Cured.	Number of Diseases Relieved.	Number of Diseases Treated without Success or Aggravated.
Chronic Diseases of the Organs of Respiration.				
Bronchitic Catarrh	1388	624	308	366
Dry Asthma	242	...	165	75
Humid Asthma	288	...	163	125
Chronic Laryngitis and Pharyngitis	532	177	320	35
Laryngeal Consumption	70	...	15	55
Pulmonary Consumption, first stage	240	...	68	172
Ditto, second and third stage	127	...	13	114
Gastralgia	765	408	357	...
Engorgements of Glands and other effects of scrofulous habit	343	109	135	49
Chronic Rheumatism, muscular and fibrous	930	315	553	71
Articular Rheumatism	267	72	144	51
Retraction of muscles and tendons	120	39	54	27
True or false Anchylosis	86	11	34	41
Cerebral Paralysis	18	...	...	18
Divers Paralysis	64	8	32	24
Diseases of the Skin.				
Chronic Eczema	273	63	189	21
Impetigo Figurata	170	49	107	14
Impetigo Sparsa	162	39	111	12
Lichen Agrius	43	5	22	16
Mentagra	34	11	14	9
Pustular Labial Dartre	36	12	16	8
Anæmia, resulting from syphilitic treatment	66	48	15	...
Lactation	55	40	15	...
	6328	2030	2993	1305

CHAPTER XXIX.

OBSERVATIONS ON THE PARTICULAR INFLUENCE OF THE WATERS OF THE EAUX-BONNES AND EAUX-CHAUDES ON DISEASE.— RESUMÉ OF THE FACTS AND REASONINGS CONTAINED IN THE WORK, IN REFERENCE TO THE ACTION OF THE SULPHUROUS WATERS.— TABLE OF THE APPROXIMATE PATHOLOGIC CONDITIONS OF THE SYSTEM, AS TO THE TYPE OF DISEASE AND TEMPERAMENT OF THE PATIENT, APPLICABLE TO EACH SOURCE, IN RELATION TO ITS STRENGTH OF MINERALIZATION AND HIGH DEGREE OF TEMPERATURE.— EAUX-BONNES.— ITS WATERS, ETC. —EAUX-CHAUDES.— ITS WATERS, ETC.

HAVING completed the description of those watering-places in the Hautes Pyrénées which entered into our plan, we would now conduct the reader to the only remaining two to which we shall direct our attention, namely, the Eaux-Bonnes, and Eaux-Chaudes, in the department of the Basses Pyrénées, and which have long enjoyed a prominent reputation. From Cauterets, indeed, to the enterprising traveller on horseback, there is a rough mountain track leading to the Eaux-Chaudes, and thence to the Eaux-Bonnes, by the Spanish watering-place, Penticosa, in Arragon; and where, in the contemplation of magnificent scenery, he will be well remunerated for the fatigue of bad roads and other inconveniences. But for persons *en voiture*, and particularly for those travelling *post*, there is no other route to the Eaux-Bonnes and Eaux-Chaudes, except by turning back on Pau, the central point.

We feel that the remaining part of the task yet to be

completed will not be a tedious one. Already have the ample discussions, which have taken place on the general therapeutic action of the sulphurous waters of the Pyrenees, and the minuter application of *principles* to the details of disease in the chapters on Barrèges and Cauterets, conveyed a tolerably clear idea of the *modus operandi* of these powerful curative agents in different pathologic states of the human frame; so that it is now difficult to throw much additional light on the subject in this chapter, on the Eaux-Bonnes and Eaux-Chaudes. It is left for us, therefore, simply to give such descriptions of these watering-places and their vicinity as may be amusing to the invalid; together with the analysis of their waters; and the shades of diseases, which, from the lower state of mineralization of these waters than most others of the Pyrenees, are more appropriately submitted to their influence, and such as are recommended by experience and sanctioned by science.

That the climate of a watering-place is no mean auxiliary to the action of the waters; and that it induces a modification of their powers, there can be little doubt. The establishment of the Eaux-Bonnes being situated in a species of gorge which is a *cul de sac*, there is considerably less agitation of the air than at the other sulphurous watering-places of the Pyrenees, its climate is consequently less irritating. It may be for this reason that the Eaux Bonnes has been preferred as a place of resort for consumptive patients.

It is quite certain, from experience, that the waters of the Eaux-Bonnes, taken at their source, are ventured upon with the presence of urgent chest-symptoms, when one would not prescribe, under similar circumstances,

the waters of Cauterets. Still the ground, when the substance of the lungs themselves is really affected with scrofulous disease, is a very limited and debateable one for treatment by the means of these waters, even under favourable circumstances.

Again, we are of opinion, that in any affection of the lungs, which has derived marked alleviation from the climate of Pau, and where it may be considered desirable to try the Pyrenean waters as a remedy, the Eaux-Bonnes is the best situation in the Pyrenees to afford the experiment a fair trial.

And as to the *Eaux-Chaudes,* if we subtract the inconvenient nature of its site, built in a narrow ravine which acts with funnel-like attraction to all the winds that may be rumbling and tossing about in the higher valley of Gabbas, it is found that they are useful in cases of rheumatism, for instance, where there may be some chronic inflammation even present, for which condition the stronger waters would be injurious.

When we reflect that the qualities of the sulphurous waters of the Hautes Pyrénées, generally, are beneficial inversely as the strength of their mineralising properties and temperature, in relation to the strength of *tone* and liability to excitement, and the reverse; it is clear that the waters of the Eaux-Chaudes, which are the least mineralized of all the Pyrenean sulphurous springs, may be useful in diseases of the generic character usually benefited by the different sources, even although connected in some degree with the drawback of comparatively increased tone and vascular action. And experience proves the truth of this doctrine.

We, therefore, wish to convey the idea that the diseases for which the Eaux-Chaudes may be used with advantage

are those which have not run a protracted and chronic career; but rather, cases where there is still some slight activity of symptoms either essential or accidental.

In connexion with this subject, and as a convenient opportunity to give a *resumé* of the inductions from the facts and reasonings scattered over the part of this work which has reference to the sulphurous waters of the Pyrenees, we have prepared an approximate table of the pathologic conditions of the system, as to the type of disease and the temperament of the patient, taken in relation to the degree of mineralising power and thermal temperature of the different sources, and as appropriate to them. But before submitting this table, we shall reproduce in a concise form the leading principles which ought to regulate us in forming a correct estimate of the subject.

1. The majority of scientific men, who have studied the virtues of these waters, are of opinion that their activity as a curative agent is in proportion to the quantity of sulphuret of sodium they contain, and the degree as to elevation of thermal caloric combined with them. 2. The direct effect of all sulphurous mineral waters is to stimulate the circulation in, and pervade the structure of every tissue, whether in health or in disease. 3. That they are, consequently, contra-indicated in all cases where there is present active inflammation of any tissue. 4. That they are more favourably suitable to persons of a lymphatic and leucophlegmatic temperament and those debilitated by disease, the natural tone of whose habit has been thus considerably lowered, than to the nervo-sanguine. 5. That, however, when all active symptoms have ceased in *maladies not connected with internal organs,* however severely they may have raged

and where the effects to be obviated are the usual consequences of increased action, the waters may be advantageously used, provided the natural temperament be not too highly sanguine, or if so, provided artificial means are used to reduce its standard to the point, that in acting upon a local injury, we do not rouse up a constitutional disturbance dangerous to the powers of life. 6. That, *à fortiori*, they are pre-eminently indicated in all functional diseases depending on general atony; and in all chronic lesions of long standing not affecting the nobler organs of the body. 7. That they may be used in some states of inflammation of a chronic kind; but in this case the waters possessing the weakest principles of mineralization, united to the lowest thermal temperature, are those to be employed in preference. 8. That from the bad success which has attended the treatment of consumption by means of the sulphurous waters, even from the first stage to the last, as indicated by the Statistical Table given in the last chapter, there is but small encouragement, either for physicians or patients, to continue the treatment of this disease by the same means. There we have found that out of 367 cases treated by the sulphurous waters in a given time, there were *no cures*, only 81 ameliorations, and 286 unsuccessful results. Although this may be a reason for medical men not sending patients in such a state, still we have seen sufficient reason in the course of this book for believing that substantial good may be effected by thermal means, in that deranged state of the mucous membranes which too often ushers in pulmonary disease, and that this is the opportunity which ought not to be neglected by persons so affected, and who are known to have a consumptive taint in their constitutions.

Approximate Table of the Pathologic Conditions of the System as to the Type of Disease and the Temperament of the Patient, taken in relation to the Degree of Mineralising Power and Thermal Temperature of the different Sources, and as appropriate to them.

Sources.	Thermal Establishments.	Quantity of Sulphuret of Sodium.	Temperature.	Pathologic states of the system, as to type of disease and temperament of the Patient, applicable to each source.
Grand Douche .	Barrèges	0·0498	114°	Inveterate maladies of the skin; consequences to joints, muscles, and tendons, from acute attacks of rheumatism and rheumatic gout; loss of power of limbs from causes not cerebral; anchylosis; spontaneous luxations; deep-seated irritation, from depôts of matter, carious bones or foreign bodies lodged; consequences of phlegmasia dolens; neuralgia; ill-conditioned ulcerations, scrofulous and others, and inveterate fistulous sores.
Buvette . .	Ditto	0·0321	109	
Bruzaud . .	Cauterets	0·0385	104	
Espagnoles. .	Ditto	0·0344	122	
Cæsar. . .	Ditto	0·0303	124	
Pause. . .	Ditto	0·0303	115	
Bain de Fond .	Barrèges	0·0270	97	The same diseases as above in persons of more excitable temperament.
St. Sauveur .	St. Sauveur	0·0253	92	In milder forms of the same diseases in women, children, and persons of nervous temperament.
Buvette . .	Eaux-Bonnes	0·0251	90	In diseases of the air-tubes and pulmonary apparatus, and first threatening indications of consumption; more suited to these cases than other waters, from not over exciting the pulse, in properly regulated doses.
La Douche. .	Ditto	0·0251		
Source Temperé.	Barrèges	0·0245	92	Much the same qualities as St. Sauveur.
La Raillère .	Cauterets	0·0194	104	In abnormal states of the mucous membrane; effects very decided in restoring healthy secretion and improving organic tone; in weakened organic tone, generally unaccompanied with serious lesion.
Le Pré . .	Ditto	0·0159	120	In nervous rheumatic gout, unaccompanied with inflammation.
Le Bois . .	Ditto	0·0140	122	
Maouhourat .	Ditto	0·0124	131	Most efficacious in atonic dyspepsia; highly diffusible and diuretic.
Petit St. Sauveur.	Ditto	0·0121	97	The same virtues as St. Sauveur proper, but milder.
Lésquirette. .	Eaux Chaudes	0·0090	94	In affections of a recent nature, such as bronchitis, rheumatalgia, and mild cases of rheumatic gout, etc., etc., where, from being complicated with a tonic temperament, or from some accompanying inflammatory irritation, the stronger waters would aggravate the malady.
L'Arressecq .	Ditto	0·0090	77	
Baudot . .	Ditto	0·0086	81	
Le Clot . .	Ditto	0·0063	96	
Le Rey . .	Ditto	0·0063	92	

The Eaux-Bonnes and Eaux-Chaudes are twenty-six English miles from Pau, and nearly equi-distant from this latter town. A road, kept in excellent order (and where do we find better roads than in the Pyrenees?), leads to the village of Laruns, at the feet of the great Pyrenean chains, and three miles from both watering-places. Here the roads divide almost at a right angle, that to Eaux-Bonnes taking an easterly direction, up a gorge lying under the shadow of the Pic de Gers, which may be seen towering over its lofty neighbours from the Place Royale at Pau; the other striking through an artificial pass in the mountain up the valley of Gabbas, through Eaux-Chaudes in its way over the frontier near the Pic de Midi de Pau. The road from Pau to these watering-places runs directly south over the Gave, and a mile distant from Pau dives amidst the luxuriantly-wooded côteaux of Gelos and Jurançon, which, under other names, succeed each other for miles, until we fairly emerge into the plain of Arudy.

The first five miles of this road to Gan is very well known to the invalid society of Pau, as being the usual promenade, the road being picturesque, and, at the same time, well sheltered. In every direction along the côteaux which skirt this beautiful drive, we find country-houses, whose situations are judiciously chosen in reference to the views and freedom from atmospheric inconveniences. On the right, in one of the houses on the hill, we see the mansion where Lord Elgin spent many years as a prisoner on *parole*, after having suffered an imprisonment in the Chateau of Lourdes. The first village, five miles from Pau, is Gan, one of the thirteen ancient towns of Bearn, which were regularly fortified, having had its enclosing wall with flanking towers and

surrounding ditch, of which some remains have come down even to the present time. It had in its day sustained many sieges; and, as a recompense for the valour displayed, it had the name of Gan, a corruption of *gagner*, to win, given to it, which it still proudly preserves. Amidst other historical personages to whom this village gave birth, we mention Marca, born in 1594, the historian of Bearn, and who ultimately became Archbishop of Paris, on the disgrace of the Cardinal de Retz.

There is nothing interesting beyond the scenery to detain us on the road. We pass through the villages of Rebenac, Sevignac, Louvie, and Laruns; and thence proceed we first to Eaux-Bonnes.

In a *cul de sac*, crouching under the protection of mountains 7000 feet high, we find the renowned little watering-place, Eaux-Bonnes. This fame does certainly not, in any degree, depend upon its size, for there are not forty houses in the place; still five or six hundred invalids are annually accommodated at prices which are rather startling.

We do not find here, as at Bagnères de Bigorre, Cauterets, and other watering-places in the Pyrenees, evidences that the Romans were acquainted with, or patronised the waters of Eaux-Bonnes; but most interesting recollections are cherished of Margaret of Anjou, whom gallantry had raised to the rank of the fourth Grace and tenth Muse. These waters derived no small fame, likewise, from their healing properties, so eminently displayed after the battle of Pavia, when Henri d'Albret, grandfather of Henri Quatre, brought his wounded followers to this spring, which received, on this account, the name Eaux-d'Arquebusades.

The village of Eaux-Bonnes has an elevation of 2,100

feet above the level of the sea. The air is pure and fresh, and, from its topographical position, is less agitated by winds than many other places in the mountains; and, consequently, more suited to pulmonary irritation than any other sulphurous watering-place of the Pyrenees. There are several cascades to be seen in the neighbourhood, and many excursions on horseback among the mountains.

In the locality of the Eaux-Bonnes there exist five distinct springs:—1. La Source Vieille, which furnishes the water to the fountain for the drinkers and four baths —temperature 88°. 2. La Source Nouvelle (86°), reserved for the purpose of having its temperature artificially raised. 3. La Source de la Douche (91°), supplies four or five baths and a douche. These three springs supply the thermal establishment. There are two others little used, although Dr. Daralde, the inspector, has recently made experiments with regard to one of them, highly sulphurous, but of a low temperature (54°), and thinks that it may be advantageously used in atony of the digestive organs. The following is the result of an analysis made by Monsieur M. O. Henry, of a quart of the water:—

Nitrogen gas		traces
Carbonic acid gas	quart	0·0064
Hydrosulphuric acid gas		0·0055
Chloruret of Sodium	grains	0·3432
—— of Magnesium	do.	0·0044
—— of Potassium		traces
Sulphate of Lime	grains	0·1180
—— of Magnesia	do.	0·0125
Carbonate of Lime	do.	0·0048
Sulphur		traces
Silex and Oxide of Iron	grains	0·0160
Organic matter containing Sulphur	do.	0·1065
		0·6054

Monsieur Longchamp has found the following quantity of sulphuret of sodium in these springs of Eaux-Bonnes —water a quart:—

La Buvette	0·0251
La Douche	0·0251

Little remains to be said as to the medical properties of the Eaux-Bonnes waters, as we have already exhausted the subject. We shall conclude, however, by giving a quotation from the work of Theophile Bordeu, and some remarks from a report of Dr. Daralde, the Inspector of the Eaux-Bonnes. 'It is to us (says Bordeu) that the internal use of the waters of Bonnes is owing, and their application to maladies of the chest, and the fortunate celebrity which they have acquired: they have cured some persons affected with pulmonary maladies, and have alleviated a great number. Unknown in France up to this period, their fame has extended even to the capital, into the most remote provinces, and into the country of the stranger. I have seen, however, cases of ulceration of the lungs, which the waters of Bonnes could not save from death; in some they increased the expectoration, in others they decidedly diminished it. Some experienced, the first few days, an insidious amelioration, shortly followed by suddenly fatal results.'

Dr. Daralde, in his report for the year 1835, gives seventeen instances, to shew that in pulmonary consumption, arrived at the third stage, the waters of the Eaux-Bonnes, in a very few days, fatally aggravated the disease, and the patients suddenly sank. In thirty-three cases of consumption in the first and second stage, the condition of the patient was found to be ameliorated, and the cough entirely to disappear. In seventeen cases of chronic

laryngitis, with or without loss of voice, four were perfectly cured; the other invalids experiencing a marked amelioration. Out of seventeen persons suffering from chronic pulmonary catarrh, four were cured, the cases of the others ameliorated, and the patients got into condition.

To proceed to the Eaux-Chaudes, it is necessary to return to Laruns. Here we commence a short but rapid ascent, which leads through a narrow pass cut in the rock. The moment of our emerging from this pass brings before us the valley of the Eaux-Chaudes; and it has been remarked more than once to us, that the view from this spot resembles very much some of those varied ones on the Simplon.

The Eaux-Chaudes is a petty village, composed of some dozen houses, worse built and worse supplied with accommodations than any other of the watering-places. The springs are called Eaux-Chaudes from a sort of *lucus a non lucendo* reason, because they are the least hot of all the Pyrenean springs. The village is hemmed in, on one side, by a lofty perpendicular mountain; on the other, the uproarious Gave confines it, within a space of a few yards, so that it is upon this little platform of mountain débris that the houses are built. The sternness of nature has said to speculators in building, 'Thus far shalt thou go and no farther'; for all the available territory has been already grasped, on which have been erected the few houses which constitute the village.

Some years ago, a splendid thermal establishment in marble was erected, containing douches and baths on an improved principle.

The scenery surrounding the Eaux-Chaudes is of the

most magnificent character, and the excursions may be much varied in search of the picturesque. A very common one is that to Gabbas, six miles distant, where one comes within apparently hailing distance of the Pic de Midi de Pau.

There are six sources at the Eaux-Chaudes, namely: 1. Lou Rey (93°). 2. L'Esquirette (95°), the most highly mineralised of the springs, and in greatest repute among the invalids. 3. Le Clot (97½°). 4. Laressecq (77°). 5. Baudot (82°). 6. Mainvielle (52°). Of these six, the three first are employed in bath and douche, and the three last internally. Of all these springs, the only ones known in 1780 were Lou Rey and L'Esquirette.

A chemical analysis of these waters has been made by M. Longchamp, who found sulphuret of sodium, traces of free alkali, sulphate of lime, and silex. The most sulphurous of the springs, L'Esquirette and Laressecq, contain only one-third of the sulphuret of sodium to be found in the Eaux-Bonnes, and these last only contain two-fifths of that of the Grand Douche at Barrèges.

It is unnecessary, after all that has been already said, to enter at any length into the individual medical properties of these springs. The establishment has the good fortune to possess an instructed and experienced physician inspector, who knows how to apply the requisite spring to the appropriate symptom; and, in his hands, their administration may be left with confidence and safety. We shall only make one observation, that so beneficial do they appear to be in some descriptions of rheumatism, that persons among the peasantry, who come from a distance on crutches, frequently return home on foot.

Having now finished all that we consider necessary to

say connected with Pau, the merits and demerits of its climate, the means of agreeability it offers as a place of residence, and its comparison with other continental climates; and having described the leading Pyrenean watering-places, and the medical properties of their waters; we shall conclude this work with some cursory notices of the natural history of the Pyrenees, and of their mountain sports.

CHAPTER XXX.

SOME CURSORY NOTICES OF THE NATURAL HISTORY OF THE PYRENEES.—BIRDS AND BEASTS OF CHASE.—ENUMERATION OF SOME INSECTS FOUND IN THE NEIGHBOURHOOD OF THE WATERING-PLACES.—THE CHASSE OF THE COQ DE BRUYÈRE, IZZARD, BEAR, WOLF, AND IBEX.

IT would be a superfluous undertaking to give a minute description or even a catalogue of the animals which permanently reside in, or occasionally and periodically visit, the Pyrenees; since, with the exception of those met with beyond the regions habitable by man, and which, like the plants, become more rare as we approach the lofty summits of the chain, they are those common to most mountainous vicinities, and corresponding points of medium elevation. With regard to the beasts and birds, we shall confine our remarks to such as are peculiar to the most untrodden beats of the Pyrenees, where the natural antipathy betwixt the lower creatures and their ruler, man, has taught them to choose the most difficult solitudes for indulging an uninterrupted freedom—a necessity of their natures, and to such, therefore, chiefly as become the subjects of the chase.

After leaving behind the last habitations of the mountaineers, as the painful ascent is made up some of the stubborn chains, the zoologist finds himself in regions altogether unsuitable to, and unacquainted with, the tamer animals of the plains; heights, where the eagle and the barbed vulture, secure in their despotism, view

far beneath them, in the middle air, their victims of prey, ambitiously courting aërial honours, and in their soaring flight gradually approaching their destruction. And here the wolves rarely, but the bears more frequently, establish their lurking-places. These animals, less ferocious than those of the Alps, cause, however, frequent inquietude to the shepherd. Nevertheless, the hardy mountaineers follow them even to their dens, and attack them with fire-arms; or, wrapped up in triple sheepskins, and armed with long knives, hesitate not to meet them front to front.

A chase less perilous, but more fatiguing, over the perpetual snows, is that of the izzard,—the chamois of the Pyrenees,—of the ibex, still more scarce and shy, and of the coq de bruyère, although in regions less elevated, still most difficult for the sportsman, midst the intricacies and broken precipices of *pics* thickly clothed with pine.

We find, in the higher regions of the mountains, the following specimens of animals:—the wolf, bear, and izzard. The lynx, wild boar, roebuck, and wild cat, although at one time found in great numbers, are now extremely scarce; and the stag, according to Buffon, has been unknown for more than two hundred years. In the western part of the Pyrenees, pine martens, ermines, and the Virginian squirrel, prized for their skins, are still to be met with in considerable numbers. There is an animal also in these mountains called by the peasants the *loup terrier*, which seems to be undescribed; at least it is difficult to identify it with any notice in works of natural history. None of the mountain *ciceroni* that we have met with, had ever seen one alive, but they

describe the animal to be larger than a fox, of a light fawn colour, and burrowing in the ground, harmless, and living on roots; rather a mysterious sort of animal certainly, which, something like the water-kelpies of Scotland, has rather an abstract kind of existence.

On the inaccessible *pics* the eagles and vultures, and the coq de bruyère (the capercailzie of Scotland) in less elevated regions, take up their abodes; while the tomtit of the Alps skips among the precipices, the rock-blackbird blends its song with the current of the torrents, and the wallpecker glides along the abrupt declivities. The ptarmigan is plentiful everywhere, as is also the mountain partridge; and bustards are said to be found on the elevated plains, while ravens and daws in abundance accompany the flocks of sheep in their pastoral wanderings. Some of the Pyrenean birds are in great request among strangers who frequent the watering-places. The wood-pigeons and stock-doves, although very common, are not the less in estimation. As autumn advances, and the trees become despoiled of their leaves, these birds of passage, migrating from the north and traversing the gorges on the less elevated parts of the mountains in search of a milder temperature, are caught in great numbers in nets, into which they are artfully decoyed—a sport more particularly described in a former chapter on Bagnères de Bigorre, where it is practised on a large scale. Quails, cranes, and wild geese are also very numerous at the season of migration.

We subjoin a short enumeration of some of the insects found on the mountains in the neighbourhood of the watering-places:—

1 Cymindis humeralis ; alpine region, under the stones.
2 Clivina arenaria ; borders of torrents, under the stones.
3 ——— gibba ; found in various situations.
4 Carabus splendens ; subalpine region.
5 ——— purpurescens ; in various situations.
6 ——— catenulatus ; ditto common.
7 ——— convexus ; ditto more rare.
8 ——— hortensis ; ditto common.
9 ——— pyrenæus ; alpine region ; it does not quit the alpine zone ; rather common.
10 Calosoma sericeum ; most rare.
11 Nebria picicornis ; borders of the torrents.
12 ——— jokischii ; alpine region, rare.
13 ——— lafrenayei ; more common.
14 Leistus nitidus ; borders of the torrents, rare.
15 Licinus silphoides ; Eaux-Bonnes, rare.
16 Badister bipustulatus ; ditto rare.
17 Chlænius velutinus ; borders of the torrents, rare.
18 ——— vestitus ; ditto rare.
19 ——— tibialis ; ditto rare.
20 Amara montana ; alpine region, rare.
21 Anchomenus cyaneus ; borders of the torrents, beautiful and rare specimen.
22 Calathus frigidus ; subalpine region.
23 ——— melanocephalus ; ditto.
24 Argutor abaxoides ; alpine region, not rare.
25 ——— pusillus ; ditto more rare.
26 Pœcilus lepidus ; valley d'Ossau.
27 Platysma nigra ; Balour, Eaux-Bonnes.
28 Pristonychus pyrenæus ; alpine region, pic de Gers, very rare.
29 Pterostichus parumpunctatus.
30 ——— Dufourii ; rare.
31 Abax striola ; Eaux-Bonnes.
32 Steropus concinnus ; ditto.
33 Zabrus abesus ; alpine region, Gers, common.
34 Harpalus conformis ; Eaux-Bonnes.
35 ——— semiviolaceus ; ditto, etc.
36 ——— serripes ; ditto.
37 Bembidium striatum ; borders of the torrents.
38 Peryphus tricolar ; ditto.
39 ——— decorus ; ditto.

40 Peryphus cœruleus ; borders of the torrents.
41 ——— femoratus : ditto.
42 ——— rufipes ; ditto.
43 Lopha 4 guttata ; ditto.
44 —— 4 maculata ; ditto.
45 Omophron limbatum ; ditto.
46 Lesteva dichroa ; ditto, rare.
47 Lychus minutus
48 Rhysodes erupæus ; in old rotten fir stumps, rare insect not discovered in France till 1828, by M. Dufour.
49 Necrophorus mortuorum ; rare.
50 Sylpha atrata ; under the bark of the fir-tree.
51 ——— thoracica.
52 Peltis grossa ; under the bark of the fir-tree.
53 —— ferruginea ; ditto.
54 Thymalus lymbatus ; ditto.
55 Byrrhus pyrenæus ; under the stones.
56 Synodendrum cylindricum.
57 Hypophlæus castaneus.
58 ——— bicolar.
59 Diaperis boleti.
60 ——— violacea.
61 Boletophagus crenatus.
62 ——— spinosulus ; bark of the beech-tree.
63 Melandria serrata ; ditto.
64 Anthribus albinus ; ditto.
65 ——— latirostris ; ditto.
66 Liparus glabratus ; under the stones.
67 Pachygaster navarricus ; ditto.
68 ——— monticola.
69 Callichroma alpina ; old beech-trees.
70 Chrysomela gloriosa ; the plants
71 ——— cacaliæ.
72 ——— phalerata.
73 ——— pyritosa ; meadows.
74 ——— aucta ; ditto.

We now proceed to give a short description of the chase of the izzard, bear, wolf, ibex, and coq de bruyère, which, independently of the healthy excitement in-

separable from such a pursuit, affords to the tourist the occasion for beholding the grandest specimens of hitherto little-explored scenery; and here we cannot avoid recording our obligations to a sporting friend, who has favoured us with notes, containing some details of two or three successful expeditions, in the usual and difficult haunts of these animals.

With regard to the izzard.—This animal may, we think, be identified with the chamois of the Alps (*Antilope rupricapra*, LINN.) The objections usually made to their being the same animal, are the difference of size, of colour, different position of the horns, and the fact that they are seen in large herds in the Pyrenees. The first distinction is owing to nothing but difference of climate and food; the second is refuted by Coxe (*Voyage en Suisse, 29th Letter*); the third is entitled to little weight, as on the comparison very little difference can be detected; the fourth objection is refuted by Coxe, and even allowing it to be true, is met by the answer that the chamois is more hunted than the izzard.

Through the whole of the Pyrenees, the izzard is to be found on the higher mountains. At Bagnères de Bigorre, the race is extinct (although a *chasseur* lately encountered an old gentleman on the Salut road, who gravely asserted that three cows on the Bedat were izzards). Inglis mentions having seen either one or two on the Pic de Midi, but this has reference to some years ago, and the natives say that there are none now to be met with. In the neighbourhood of Barrèges also, they are becoming scarce. We should say that Cauterets, in the Hautes Pyrénées, and the valley of the Eaux-

Chaudes, and the mountains intervening between these two, are the best hunting quarters within a pleasant distance of Pau. Girons, in the Arriège, and Bagnères de Luchon, are both excellent quarters, but so far from Pau as to put an expedition out of the question.

To hunt with success, we must avoid undertaking the chase with the *vent d'Espagne* or south wind blowing; for however numerous the izzards may be, the sportsman will find it impossible to surround them.

The nearest hunting-quarters to Pau are by the Eaux-Chaudes, twenty-five miles distant; a few miles beyond this place, most magnificent scenery brings us to Gabbas, the last French town on the frontier. We have now arrived at the meridian of the hunting ground. Before leaving the Eaux-Chaudes, it will be necessary to engage guides. The following are persons whose honesty, care, and knowledge of the ground may be depended upon, viz., Jean Biraben (*dit* Jean Dôt) of Laruns, a small town three miles from the Eaux-Chaudes, on the Pau road; Bertrand Bergado, of the Eaux-Chaudes (*dit* Bertrand le Baigneur); and Camy, likewise of the same place. In addition to these, when more men are required, Vignau of Laruns (an excellent sportsman and first-rate shot), and Barron of Gouste, may be depended on, as honest, hard-working men, and good at hill-work. Bertrand Bergada, being the bather, cannot accompany parties on the hill in summer, as this is the season for taking the waters; in autumn, winter, or spring, he is at liberty.

There are two methods of hunting the izzard. One is the *stalking*, which, owing to the nature of the ground, is intensely difficult as well as fatiguing, and of course

doubly uncertain. The advantage is, that one gets an easy steady shot. It is practised like *deer-stalking*, which is now understood throughout England, since Scrope published his admirable work; therefore, more need not be said of it here.

The other system is that of posting the shooters and driving the izzards. For this, either Jean Dôt, Bertrand, or Vignau, is indispensably necessary, from their minute knowledge of the intricacies of the ground, and the habits of the animals; for they alone know the places where the izzards are accustomed to pass. Jean Dôt was the inventor of this system, which he has now reduced to such a certainty, that it is next to a miracle to return home without getting at least one shot; we do not mean bringing home an izzard, for it is a very hard-lived animal, and if not killed on the spot, is very apt to get off, however severely wounded. We have known several lost in this way, which must have died within a minute or two at most after the shot; but once out of sight, they must be given up as lost. For this reason a lurcher (greyhound and terrier cross), which would remain silent while not running, and give tongue while running, would be invaluable as an auxiliary to a keen sportsman, who dislikes that good game should feed the eagles, vultures, wolves, ravens, and other vermin of the mountains. Nothing can be more exciting than this diversion; the shouting of the beaters, the echoing of their guns, and a natural state of nervous anxiety, frequently cause a young amateur to miss his first shot, however practised he may be in other kinds of sport.

The usual plan is to take a light breakfast before leaving the Eaux-Chaudes (always suppposing that the

expedition is undertaken in autumn, winter, or spring). The sportsman should proceed leisurely to the *beat* if he has time, for a strain up-hill is a sad shaker of nerves. The shooters are posted, and, according to the nature of the beat, have to wait motionless a longer or shorter time, until they hear the first shot of the beaters, or *traqueurs*, as they are technically called. But if the beat is a long or difficult one, a considerable time may elapse between the first shot and the arrival of the game. Rarely do the izzards make their rush at once; generally they stop to listen to the *traqueurs,* and only pass the posts, when they are closely pressed upon from behind.

The numbers seen in one day vary very much. We have known *in one beat,* nine pass a post, within shot; while out of range, on neighbouring and loftier mountains, as many as eighty have been counted with the aid of a telescope.

After the beat is over, a comfortable place is chosen for the dinner, usually the shade of some splendid pine tree. If the weather is cold, a fire is lighted; the provisions are brought out, and under the influence of the keen mountain air, much justice is done to the fare, however homely. The izzards, if any have been killed are *grallocked*, to use the Highlander's term, and all the party enjoy themselves as best they can.

In the early part of autumn, there are many places where two *beats* can be made in one day. In winter, it is hardly possible to make more than one. A friend, however, made two in February, 1841; but the reason was that he had been unsuccessful, and was anxious to make amends for previous bad luck. The labour is not great for the shooters, but the *traqueurs* have most severe

toil, as may easily be seen when they come in from their beat. For this reason, the dinner is usually the conclusion of the day's sport.

In summer, the best manner of reaching the haunts of the izzard, which are then much higher up the mountains, is to start over night, providing oneself with a blanket, and to sleep either in a shepherd's hut, or in some sheltered place, and to commence the beat at day-break. The advantages of summer shooting are—the greater chances of game, more settled weather, and, from this latter circumstance, the power of staying several days on the hills, if the sport is found to be good. The advantages of the autumn and winter shooting are —that the izzards are in their greatest beauty, and low down on the hills; the heat is not intense as in summers and there is choice of rooms at the hotel of the Eaux-Chaudes, without being troubled either by the drinkers of the waters, or by would-be sportsmen, who distress the echoes with hunting horns, French horns, and other noisy abominations.

The izzard weighs on an average from forty-five to fifty-five French pounds. The male is found sometimes of the weight of sixty pounds, and the female of fifty pounds. Both these weights are, however, rare. In winter the male turns nearly black; but no fixed colour can be given to them, as we have seen several skins, each entirely different from the other.

And now as to the more rare *chasse* of the ibex. The ibex, bouquetin, cabra de montes, bucardo, or *Capra ibex*, is the largest and rarest game of the Pyrenees. Tradition says that it was formerly plentiful; now it is certainly *most rare*, and can only be found in the wild

recesses of the Val de Broto, in Spain, or in the still wilder solitudes of the Maladetta. We recommend the Val de Broto for the sport, as, from the experience of successful *chasseurs,* bouquetins *are* to be found there; and because the work is not so severe, the shelter better, and the distance from Pau or Bagnères de Bigorre, less.

The season for this hunt is the month of May. As soon as the mountains can be crossed, we would suggest to any person wishing to enjoy this sport, to start for the Eaux-Chaudes. There he will find guides who can conduct him during his two days' journey through the mountains. The same persons as those recommended for the izzard hunting are fully capable of guiding the stranger through this more difficult and devious route.

At Gabbas, the road through the forest to the left is taken. This leads to the Casa de Broussette, which place (the last French house) is situated at the end of a most lovely valley, surrounded by pine forests, mountains, rocks, etc. The sportsman then strikes up the mountain side to the pass of Pé du Lu. The ascent is severe, but not dangerous, if the guide be carefully followed, without attempting a short cut of any kind. The real danger is in the gorge of the pass, which is always chilly and the wind cutting, and till the month of August many feet deep in snow. The descent to Jallens (the first Spanish village) is only difficult in one part, where it is advisable to dismount. The place we would recommend to travellers to rest the first night is Penticosa, so famed for its mineral springs, at the house of Don Jose Juan Torla, who, *for a consideration*, lodges one well, and in a *clean room.* It will be well to start

early next morning, and breakfast at Briescas, not at the Posada, but at the house immediately opposite to it, which is clean to a nicety, and whose owner is most hospitable to the English. He almost adores the Duke of Wellington, "el Liberador de l' España," as he calls him.

The road from Penticosa to Briescas is down the pass of St. Helena, one of the most beautiful mountain passes in the Pyrenees or elsewhere. The road is close on the banks of the river Gallego, which, in fact, one crosses twice in the pass. The botany of this part of the road is very fine; the large saxifrage is constantly occurring, with its pyramid of flowers two feet in height; and the beautiful Raymundia pyrenealis, with its purple and yellow flowers, grows in every nook in the rocks.

At Briescas, the sportsman leaves the valley of the Gallego, and turns to the left up a wide glen to the Col de Fablo, which must be crossed (and no easy matter is it). From the top of this, the view is most magnificent, looking down into the valley of Gesero. We then pass through the villages of Gesero, Linces, Broto, and Threco, and find ourselves in the Val de Broto, and turning to the left, a short hours' trot brings us to Torla. The best house here is that of the Intendente de la Duana; he is father-in-law to Don Jose Juan Torla, and will accommodate travellers with clean beds, etc., but at an extortionate price. This is the worst fault of Spain, for you cannot bargain, and *must* pay, or 'cuchillo entonces' is the word.

The bouquetin can be found within an hour's walk of Torla; and now, having brought the sportsman to the ground, we shall give some description of the game.

The Ibex is of a dark brown colour on the back and sides, and white underneath. The male has a black beard, and his horns are much larger and thicker than those of the female. We have seen the buck's horns more than two feet in length. It is rare to find the male's horns perfect at the point, either from fighting, or from a habit *they are said* to have of throwing themselves over precipices and *kepping themselves* on their horns. The hair of the ibex is short; in winter they have a thick undercoat of fine wool. A friend killed one which weighed, when cleaned out, forty-seven Spanish pounds of thirty-six ounces each; so that we may estimate the male at from fifty-five to sixty pounds weight—the male being a giant in proportion to the female. The male ibex is of a redder brown than the female, and has a ridge of blackish bristles along the back bone.

In the winter the ibex comes down into the valleys to feed; but in summer it returns to the wildest part of the mountains. The Swiss say that an old buck will attack the hunter: the Spaniards deny it. At all events it is always better to be fore-armed; a *couteau de chasse* is a good ally, whether for *grallocking* the game, or defending oneself against a too affectionate *liaison* with some stray ill-conditioned bear.

The general food of the ibex, as far as can be learned, is supposed to be the young sprouts of the pine and fir trees during the winter and spring; in summer and autumn, the mosses and saxifrages so common on the limestone formations in the Pyrenees.

As to the flavour of the flesh of the ibex, the author begs to give a most favourable testimony, having had the pleasure, many years ago, of dining off a haunch

cooked at the Hôtel de France, at Pau, in Gardère's best style, and the feast presided over by its slayer. The flesh was higher in flavour than venison, but not so juicy, and being well piqué'd, it was altogether exquisite in its way.

It is said that the ibex is still found among the eastern Pyrenees; but the information on this subject is not very authentic. We believe the Alps and Pyrenees to be the only well known habitation of these animals. Of course we do not include the Carpathian and Ural mountains, as being out of the reach of sporting society.

In hunting the izzard and ibex, the sportsman often comes on the traces of the bear; but any sport derivable from this source is very little to be depended on. Bears are great rarities at all times in the valley of the Eaux-Chaudes, and are perfectly safe from all pursuit in summer in the boundless forests. This animal is essentially a wanderer, and never remains two nights in the same place. Generally on the move, he chooses a road easy enough for himself, but rather impassable for man. They may, however, be met with accidentally. If wounded without being disabled, he attacks the first person he meets with persevering fury. Persons cannot be too strongly warned against imagining that the bear of the Pyrenees resembles the poor miserable dancing bear with a ring through his nose, or those confined in a menagerie, or even in a pit at the zoological gardens. Though unable to take a sudden spring like a cat, when once in motion they are able to take leaps, astonishing to those who suppose them to be awkward and unwieldy.

The bear, however, never commences an attack; at least, we know of no case in which he has been the

aggressor, and we have heard of many in which both parties have retired from the field without coming to blows, the man from being unarmed, and the bear from unwillingness to fight till injured.

From the difficulty of finding the bears in summer and autumn, it is better not to make any attempt in the way of hunting them, unless authentic notice is obtained of their being traced to their dens. Then it comes to a fair stand-up fight, when nerve and presence of mind are required to achieve a conquest. Without these qualities, it may be desirable to leave Monsieur Bruin quietly *chez lui.*

The coq de bruyère is common in the high pine woods. The manner of shooting them is by going in the spring (May) over night to the ground, camping out, and at daybreak starting through the woods. When the sportsman hears the cock crow, he must run to the spot and get his shot. They leave off crowing as soon as the sun gets warm; so the sport is but short, and the fatigue very great, owing to the nature of the ground. The bird is first-rate eating.

The wolf is very rarely hunted from its fastnesses in the mountains. It is only when an unusually severe winter clothes the Pyrenees with deep snows, even in their sheltered nooks, and drives the wolves into the plains, and in the neigbourhood of towns, that people rise to protect their poultry, sheep, and domestic animals from becoming their prey. During the months of March and April of 1842, some wolves were discovered to have taken up their abode in the Bois de Pau, only a few miles from the town, and on the side most distant from the mountains, and three field-days were got up by the

English and French to extirpate them. Each day they found and killed their game. The plan was to post the shooters and beat the wood, which drove the wolves into the open country, where they speedily fell under the aim of some one of the belligerent parties.

In conclusion, the author trusts, that he has fulfilled the intention expressed in the outset, to point out some leading principles, as applicable to the preventive and curative influence of the climate of Pau, absolutely as well as relatively, with regard to some other European climates, and of the mineral waters of the Pyrenees, on disease, which may guide the distant invalid when to seek, and when to avoid, these curative agents, and that he has attempted to lighten the heaviness, naturally incident to a work of this nature, by the introduction of miscellaneous, though it is hoped not uninteresting, matter. If this book, however, shall be the means of preventing useless and painful journeys to the hopeless invalid, or of stimulating others to avail themselves, under happier auspices, of the remedial means here pointed out, he will not have written in vain.

THE END.

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